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Transportation Test With Lemons and Oranges in Half-Box Size Fiber Board Cartons from Southern California to New York July 1952

(In cooperation with the Sunkist Growers, American Fruit Growers and Mutual Orange Distributors)

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Transportation Test with Lemons and Oranges in Half-Box Size
Fiber Board Cartons from Southern California to New York
July 1952

Introduction

The citrus industry of California and Arizona has experienced a remarkable expansion in the usage of half-box size fiber cartons since the introduction of the present types less than a year and a half ago. 1/ Dr. Roy Smith, 2/ writing

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1/ Smith, Roy J., New Lemon Boxes, Citrograph. Page 438. September 1951.

2/ Smith, Roy J., A Time and Motion Study in Packing Lemons. Citrograph. Page 275. May 1952.

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probably last April, estimated that nearly half the packing houses in the industry were shipping to some extent in cartons. The half-way mark in this regard has by now probably been exceeded.

From the beginning of this movement to the end of 1951 (about eight months (?)) the three principle citrus shipping organizations used about 275,000 cartons. And from January to August 1952, (inclusive) the same organizations used about 4,080,000 cartons.

About ninety-five percent of these have been used for lemons. For several reasons lemons have entered into this shipping container innovation more promptly than oranges. Probably the most significant of them lies in the field of economics, that is to say, handling and marketing. However, the reasons concerned in this report have to do chiefly with those affecting transportation conditions.

When transportation of citrus in cartons came under consideration the question at once arose as to how these containers would alter the transit refrigeration picture. A large amount of information on refrigeration of citrus from California had accumulated through years of transportation tests, but all of it dealt with standard containers, and in several respects might not be applicable to carton loads. Unlike the standard citrus containers, the sealed or closed cartons now being used for rail shipments, obviously would allow neither air circulation through the container nor ready circulation around it. Taken alone these facts indicated a rather hopeless situation, because free circulation of air through and around the container seemed necessary both for proper refrigeration and the removal of respirational bi-products gases. However, the first tentative shipments in the sealed cartons won favorable reports as to arrival conditions of the fruit and have continued to do so.

In July and September 1949 the U.S.D.A. made three shipping tests using Ryan recording thermometers in part-car loads of oranges in cartons. None of these cartons were of types quite like the present half-box sealed cartons. Most of them had openings for ventilation and as result refrigeration in transit proved rather satisfactory.

In August to September 1951, seven shipping tests were made from Ventura County with oranges and lemons in cartons. Different types were used for oranges, including some ventilated. The lemon shipments included two cars from Montalvo to the Atlantic Coast, each car carried solid loads (975) of sealed cartons. The cars differed chiefly in that one was equipped with fans. This pair of cars gave direct evidence of a very substantial refrigeration advantage for the fan car in solid carton loads. These shipping test yielded other information on the behavior of cartons in transit, but not sufficient to furnish the answers to many questions asked by shippers who are using, or considering the use of them.

Returning to the subject of the relative extent to which cartons are being used for lemons and oranges, it may be stated that the transit refrigeration of lemons in cartons was never thought to offer too serious difficulty. This was because lemons are mostly warehouse cooled when packed, and need only a moderate amount of refrigeration in transit. Also in general they are considered more amendable to holding or storage than oranges. But the possibility of harmful accumulations of gases within the sealed package remained a matter of concern.

The shipping of oranges in sealed, non-ventilated cartons, is admittedly more hazardous than with lemons. There are a number of reasons for this condition, but from the standpoint of refrigeration in transit, the difficulty seems chiefly due to the fact that oranges are being loaded warm, since no commercial precooling procedure has yet been adapted to packing in cartons, so without a means of precooling before packing, the use of sealed cartons for orange shipments has been limited.

A salient point regarding the sealed carton is that they are treated with the fungistat, diphenyl, dissolved in a waxy carrier. This treatment of the cartons may be responsible often for the usual small incident of decay reported for carton shipments, especially of warm oranges.

As indicated above, the purpose of the transportation test reported here, was to obtain further information on the behavior of the half-box fiber board cartons, in different load patterns and combinations with standard boxes.

Test Cars

Eleven test cars of warehouse-cooled lemons, four of which were loaded in Ventura County July 8, and seven in districts east of Los Angeles July 9. Also five test cars of warm oranges were loaded July 9 in the latter districts. There were two standard loads of lemons (464 boxes) in the test and one standard load of oranges (462 boxes). The other thirteen test loads consisted of lemons or oranges in half-box size fiber board cartons entirely, or with standard boxes arranged in various load patterns to be indicated later in this report.

All test cars were equipped with Preco fans of which four car sets were electric. All but one of the test cars were equipped with wall flues.

Temperature Records

Temperatures within the cars were obtained by means of distance-reading electric resistance thermometers at twelve positions in each car. The thermometer locations are shown in tables 5 to 20 which present temperature records for each test car. In addition, two cars carried Ryan recording thermometers in the loads, one five and the other six of them. The outside air temperatures were obtained by Ryan recording thermometers outside and underneath two of the test cars. A graph showing outside air temperatures enroute appears on all charts in this report.

Route and Running Time

The test was routed via Santa Fe to Chicago and Erie to Jersey City. The Southern Pacific delivered four test cars from Ventura County to Los Angeles. The total lapsed time from San Bernardino to Jersey City was 155 hours and 50 minutes. Of this 91 hours and 42 minutes (58.8%) was running time and 64 hours and 28 minutes (41.2%) standing.

Weather Conditions

The outside temperatures encountered were not as high as sometimes experienced on hot weather test trips. However, the maxima of the first four days enroute (five days for the Ventura County cars) were above 90°F. A minimum of 54°F., the lowest of the trip was encountered six hours west of Belen. Outside temperatures were more moderate across the central states, followed by rising temperatures on approaching the Atlantic coast. And from time of arrival in Jersey City to the unloading, the average temperature in the railroad yards was 85°F., with maxima above 90°F. The average outside temperature enroute was 79°F., but if the standing period at destination is included the total average becomes 81°F. These averages were obtained from readings taken at two hour intervals.

Fruit Held in New York for Observation

One or two cartons of lemons or oranges were removed from certain test loads and were held at 70°F. and 75 percent relative humidity at the Division's Market Pathology Laboratory in New York. Inspections were made at arrival, and again after three, seven, and fourteen days.

1. At arrival no decay or pitting was found in any lot. The general appearance of the fruit was good to excellent and firm throughout.

2. After three days, (see table 1) lemons in cartons 1, 2 and 5 were of excellent appearance. Those in cartons 3 and 4 showed some scarring, dark buttons and rather poor color. Oranges in carton 6 were of good appearance and showed no flattening. Fruit in cartons 7 and 8 showed some but not serious flattening in the bottom layers.

3. After seven days little change of appearance was noted in any lot. At this time the oranges were discarded and the lemons held an additional seven days.

4. After fourteen days lemons in carton 1 and 2 were generally firm with some fairly firm and a few soft. The color was good; over fifteen percent with dark buttons. In carton 3, the fruit was generally firm, somewhat dull in appearance and many fruit deep orange color. Six percent had dark buttons. Carton 4 was about the same as carton 3. In carton 5 the lemons were firm, fresh and bright with generally good color. Bottons were fresh and green with less than one percent dark.

Table No. 1.--Pitting and Decay in Fruit Held at 70°F. and 75 Percent R. H.

Carton No.	Car No.	Position in load	Fruit Type	Total Fruit No.	After 3 days1/ Pitting %	After 3 days1/ Decay2/ %	After 7 days1/ Pitting %	After 7 days1/ Decay2/ %	After 14 days Pitting %	After 14 days Decay %
1	D	TB	Lemons	180	0	0	0	0	0	0
2	E	TQ	Lemons	180	0.6	0	0.6	0	0.6	0
3	P	MQ	Lemons	180	0	0.6	0	0	0	0
4	B	TQ	Lemons	180	0	0	0	0	0	1.1 3/
5	I	TQ	Lemons	150	0	0	0	0	0	0
6	G	TQ	Oranges	100	0	2.0	0	2.0	-	-
7	A	BQ	Oranges	125	1.6	4.8	0	10.0	-	-
8	A	TQ	Oranges	125	1.6	0.8	0	3.2	-	-

1/ Cumulative data 2/ Penicillium rots 3/ Alternaria rot

Icing Service Used

Since the purpose of the test was to study the refrigeration behavior in transit of citrus packed in half-box size fiber board cartons and in various loading patterns, it became necessary to limit the selection of icing services to a few which in previous tests had provided more than adequate refrigeration in standard citrus shipments. So in fact six of the cars moved under standard refrigeration (mostly half-stage) and another six cars were pre-iced, replenished, plus one or two reicings in transit (full bunkers). The cars receiving initial icing services, either because of certain difficulties pertaining to preicing or upon the shippers request. (see table 4)

Relative Humidity and Dew Points

Three of the test cars carried psychrometer sets with which a few vapor pressure measurements were made enroute. The locations were in the air above the load at center doorway. The record of these is given in table 2. The

measurements were too few to be of any particular value, but are presented as a suggestion of a need for information on the moisture situation in different parts of citrus shipments under a wide variety of transit conditions. This seems particularly desirable in connection with shipments in fiber board cartons.

Table No. 2.--Relative Humidity and Dew Point Taken Above Load at Center Doorway

Date Place Time	Clovis 7/12 9:00 PM	Waynoka 7/13 10:15 AM	Shopton 7/14 12 noon	Hammond 7/15 12 noon	Hornell 7/16 4:00 PM	Jersey City 7/18 10:00 AM
Car A						
Dry Bulb	52°F.	52°F.	49°F.	49°F.	46°F	50°F.
Wet Bulb	48°	49°	47°	47.5°	44.5°	46.5°
RH	75%	81%	87%	90%	89%	77%
Dew Point	44°	46°	45°	46°	43°	43°
Car I						
Dry Bulb	52°F.	49°	47.5°	47°	49°	56°
Wet Bulb	50°	47°	47°	44.5°	47°	54°
RH	88%	87%	96%	83%	87%	88%
Dew Point	48°	45°	47°	42°	45°	53°
Car M						
Dry Bulb	44°	45°	46.5°	45°	46°	56.5°
Wet Bulb	42.5°	43°	46°	43°	44.5°	54°
RH	89%	86%	96%	86%	89%	88%
Dew Point	41°	41°	45.5°	41°	43°	53.5°

Notes on Test Loads, Including Commodity Inspections

Some of the following material is summarized and brought together in table 3. Charts nos. 1 to 16 and tables 5 to 20 to be consulted in connection with these notes.

Car A.--Oranges 152 boxes + 680 cartons. Boxes were on ends, two layers high along both side walls and in front of bunkers. Cartons filled space inside the shell of boxes, five layers high, placed lengthwise and crosswise on bottom. Ryan recording thermometers were placed in boxes; at bottom and top centerline and middle bunker south side; middle and bottom quarter south side; and middle doorway south side. These Ryans, except the one in bottom quarter south side, had opposite them an electric resistant thermometer in an adjacent carton. The purpose of the outer layer of boxes was to insulate the cartons from "hot" car walls. The results indicated that the boxes did a very good job acting as "wall flues".

For example, the average fruit temperature in a carton in the middle layer quarterlength next to south side was 5.5° cooler than in the middle quarterlength center line carton. Without the layer of boxes or wall flues the south side temperatures should have been higher than the corresponding center line position. (A random selection of fifteen cars from summer transportation tests with oranges in standard boxes and no fans nor wall flues, showed south side temperatures to be higher than the corresponding center line positions in every case. The range of difference was 1.1° to 8.3° with an average of 4.9°. Also a similar selection of four cars from previous winter transportation tests showed colder temperatures for the north side fruit than from the corresponding center line position. The range of difference was 1.3° to 11.2°, with an average of 6.4°).

The warmest positions in the load were 1/ MQ, CL (AV.= 64.5°), TD, CL (62.8°),

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1/ Abbrevations

MQ - Middle layer, quarterlength stack	TD - Top layer, doorway stack
BQ - Bottom layer, quarterlength stack	MD - Middle layer, doorway stack
TQ - Top layer, quarterlength stack	BD - Bottom layer, doorway stack
CL - Centerline of car	TB - Top layer, bunker stack
SS - South side of car	

BQ, CL (62.2°), MD, SS (60.8°), and TQ, CL (57.5°). No recorded carton position showed an average below 50°F. The coolest positions were of course in the boxes, for example; TB, CL (44.9°), BQ, SS (45.6°), and MQ, SS (46.6°).

Commodity inspection. Fruit in boxes firm and sound. Fruit in cartons firm, about one percent blue mold decay. There was a noticeable amount of flattened bruise areas on oranges in contact with walls of cartons.

Car B. Oranges - standard load, 462 boxes. Warmest positions in the car were MQ, CL (AV.= 53.4°), MD, SS (52.6°) BQ, CL (52.2°), TB, CL (51.2°) and BD, CL (50.2°). The remaining positions below average of 50°F. Total average of bottom temperatures was 50.9° and average top was 50.4°. All thermometer positions were below 50° after Waynoka, or 96 hours after loading completed.

Commodity inspection. Fruit was firm and sound, color good, buttons green.

Car C. Oranges - 154 boxes + 676 cartons. Boxes in first eleven stacks in one end of car two layers high, seven wide. Balance of load of cartons five high, six wide with one row lengthwise. A solid load. Thermometers all in cartons. Warmest positions were, MQ, CL (AV.= 73.0°), MD, SS (67.5°), MQ, SS (63.7°), BD, CL (62.6°), TD, CL (61.6°), and BQ, CL (61.3°). Remaining positions below 60°. Average bottom temperature was 59.8° and average top was

60.2°. RPIA reported that boxes arrive in Providence about eight degrees cooler in both the top and bottom layers in-doorway than do cartons.

Commodity inspection. Orages in good, fresh, sound conditions.

Cars D and E. Lemons - both cars had same loading - 464 boxes in standard pattern + 196 cartons as single deck layer. Double row through car of 4-carton chimney units. Same icing service but Car D had fans "off". Warmest positions were: Car D - TD,CL, MQ,CL, and TB,CL; average carton temperature = 60.3°. Average box temperature = 54.6°. Car E - MD,SS, TD,CL, and TQ,CL. Average carton temperature = 51.5°; average box temperature = 50.9°. It seems clear that in Car E the refrigeration was more than adequate in spite of the deck load of cartons. This refers to the cartons themselves and the layer of boxes immediately below them. Car D showed more variation of temperature through the load but no positions were too high.

Commodity inspection. Fruit in both boxes and cartons from both cars was given the rating - firm and sound, color good, buttons green.

Car F. Oranges - 990 cartons of two types. 495 without vents and 495 with vents. Each occupying one-half the car. Electric resistance thermometers in both ends of car up to and including quarterlength positions. Temperatures at bunker positions at each end were recorded by Ryan thermometers. The vented carton cooled very well, much better than the non-vented type. This is strikingly shown in chart No. 6. The vented carton had an average temperature of about 18° lower than the non-vented. Due to the action of the fans it is probable that the vented cartons gained some refrigeration at the expense of the non-vented. That is to say, the vented cartons were cooler and the non-vented were warmer than they would have been if the load had been made up entirely of one or the other type.

Average MD,CL temperatures: Vented cartons = 52.7° and non-vented = 83.6°. Likewise, MD,CL temperatures were 55.1° and 81.5°, respectively. MD,SS temperatures were correspondingly 54.7° and 73.1°. The effect of wall flues shows up differently in the two ends of the car. Wall flues seem to show more effect with the non-vented cartons. For example, in the non-vented the MQ,SS position was 12.5° lower than the MQ,CL. Also the MD,SS position was 8.4° lower than the MQ,CL. With the vented cartons, the corresponding situation was this: MQ, SS was 2.1° higher than MQ,CL and the MD,SS was only 0.4° lower than MD,CL.

The refrigeration of warm oranges in the vented half of the load appears to be rather satisfactory, but in the non-vented half, temperatures were so high as to present a serious hazard that ought not to be risked.

Commodity inspection. In some seeming variance with the above warning, the condition of the oranges on arrival was reported as - firm, "fresh appearing in both types of containers, and showed no mold, decay, or skin breakdown". Another report concerning the two top layers of this load mentions - no decay in non-vented cartons and less than one half percent decay in the vented. Some skin breakdown in both types.

Car G. Oranges - 462 boxes + 189 cartons. The boxes in standard orange load pattern with cartons in one deck layer, crosswise and lengthwise in 4-carton unit chimney type load. Thermometers were in boxes, except positions TB, TQ, and TD which were in cartons. Warmest positions were - MQ,SS (AV.= 61.1°), BQ,CL (54.0°), BD,CL (54.0°), MD,SS (53.5°), and MQ,CL (53.5°). Carton positions in deck layer were between 50° and 54°. Average top temperature was 52.2° and average bottom temperature was 52.3°.

Commodity inspection. Firm, skin texture smooth to coarse, and fair to good color. Average one percent blue mold in cartons and in boxes less than one percent gray mold.

Cars H and I. Lemons - 946 cartons loaded in the 4-carton unit chimney pattern. Both cars were the same including icing service, but Car H had fans "off". The warmest positions in Car H were: TD,CL (AV.= 61.1°), MQ,CL (59.5°), MD,SS (59.2°) and MQ,SS (57.7°). The average top temperature was 58.6° and bottom 49.8°.

In Car I, the warmest positions were: MD,SS (55.6), MQ,CL (53.2°), MQ,SS (53.3°) and BD,CL (52.6°). The average top and bottom temperatures were respectively, 49.5° and 49.7°. Refrigeration in Car I seemed very satisfactory even at the warmest positions. In Car H the temperatures were more variable through the load and showed a general average of about ten degrees higher than Car I.

Commodity inspection. Fruit from both cars was rated firm and sound, good color, buttons green.

Car J. Lemons - 945 cartons, loaded in the 4-carton unit chimney pattern. This was the same loading pattern as that of Cars H and I. It was intended that the car used would be without wall flues in contrast to Cars H and I, but since it had them it was given a second reicing in transit instead of the one reicing of Cars H and I. The second reicing showed no advantage over one reicing. The warmest positions were: MQ,CL (AV.= 56.2°), MD,SS (54.8°), MQ,SS (53.2°) and BD,CL (52.3) and BQ,CL (52.0°). The average top and bottom temperatures, respectively, were 51.2° and 50.4°. The MQ,SS position was 3° cooler than the MQ,CL, indicating the advantage of wall flues in all-carton loads. The similarity of temperatures of corresponding positions in Cars H and I point to the same situation.

Commodity inspection. Mostly firm to considerably pliable, color mostly good to considerable reddish, sound, buttons green.

Cars K and L. Lemons - standard lemon loads - 464 boxes. These were control cars. Both had fans operating, but different icing services. Car K was full bunker preiced, replenished and one reicing in transit and Car L, half-stage, preiced, standard refrigeration. Loading temperature of the lemons in both cars was about 68°, but by early in the third day enroute all thermometer locations were below 55°.

Commodity inspection. Fruit from both cars rated firm and sound, color good to some irregularity, buttons green.

Car M. Lemons - 232 boxes + 384 cartons. Boxes in one layer on end. Cartons in two layers as deck load, in the 2 row 4-carton unit chimney pattern. The warmest positions were: TD,CL (AV.= 52.3°), TQ,CL (50.1°) and MQ,CL (50.0°). All other thermometer positions were below 50°, the lowest, 45.1°. The average temperatures at all positions were very similar. The widest spread of temperature occurred between San Bernardino and Barstow, showing a maximum of twelve degrees. Loading temperature was about 63° and all positions were down to 55° or below by midnight of the third day from loading. Average top and bottom temperatures, respectively, were 48.7° and 45.8°.

Commodity inspection. Firm and sound, color good, buttons green.

Car P. Lemons - 232 boxes + 392 cartons. This car was paired with Car M and was intended to be the same except to have fans "off". The two layer deck load of cartons contained eight more cartons than in Car M. This was due to difference in deck load pattern, there being only one row of 4-carton unit chimneys. Warmest positions were: TQ,CL (AV.= 57.3) TD,CL (56.3°), MD,SS (53.9°) and TB,CL (52.1°). All other positions below 50°. There was considerable spread of temperature through the load, the extremes amounting to 15° to 18° for most of the trip. However, there were no particularly high temperatures in the load at any time after noon of the first day after loading. The MQ,CL position was unexpectedly low at all times. The thermometer here was in the top half of the box at that position and there may have been one of the chimneys through the cartons directly over it. (In a single row 4-carton chimney pattern they are along center line of car.)

Commodity inspection. Firm and sound, color good, buttons green.

Car N. Lemons - 986 cartons of two types, the regular rectangular and a new "square" shape. Both types were of the same one-half box capacity. The square cartons occupied one end and the doorway of the car. The thermometers were in the square cartons. The load was solid without chimneys. This car was paired with Car O having the same loading pattern and both moved under standard ventilation. Car N had fans "off" and Car O, fans "on". Temperatures at all thermometer positions were between 60° and 70° until 96 hours after completion of loading. During this long period all positions were near the same temperature (a spread of not over 3° - 5°). The average temperature for this period was about 67°. Cars N (and O) were initially iced with 12,000 pounds at Belen. The effect of icing was not apparent until 16 hours later when some parts of the load became cooler. About 24 hours after icing (Waynoka) the maximum spread of temperature was about ten degrees. It continued to widen to destination (Albany, N. Y.) where it had become nearly 25°. In all carton loads the lack of fan operation seemed to produce an exaggerated form of the typical temperature spread between top and bottom of the load in non-fan cars.

Warmest positions were: TD,CL (AV.= 67.1°), TQ,CL (66.3°), MD,SS (66.2°), and MQ,CL (65.4°). The coolest average position was BB,CL (53.6°). The fruit at TD,CL, MQ,CL, TQ,CL and MD,SS remained above 64° throughout the transit period. Average top and bottom temperatures, respectively, were 65.3° and 58.3°.

Car N (and O) was ventilated from point of origin to Belen or about 70 hours. When the doors of the car were closed after loading, the average fruit temperature was 62° and on arrival in Belen it had risen to 69° or about 0.1° per hour. At this rate the average load temperature might have reached 71° - 72°, before arrival in Waynoka, where the change from standard ventilation to ice refrigeration was to have been made. The "USDA man in charge" did not wish to assume responsibility for a 72° load and requested icing at Belen.

Commodity inspection. Mature and bright appearing, good color and quality, less than one percent decay.

Car O. Lemons - 986 cartons of two types. Loading and transit services same as Car N, but with fans "on". During the period Car O was under Standard Ventilation, the load temperature behavior was very much as in Car N. After icing at Belen the effect of fan operation became evident within four hours. The different thermometer positions later showed a spread in temperature but never so much as in Car N. The warmest positions were: BD,CL (AV.= 62.9°), MD,SS (61.0°), BQ,CL (59.9°), MQ,SS (59.6°) and TD,CL (59.1°). All positions in the load were below 60° before arrival in Chicago. Average top and bottom temperatures, respectively, were 55.9° and 58.3°. The charts for Cars N and O show the advantage of fans in operation in solid carton loads.

Summary

The present transportation test included the following lemon loads: Two cars with standard loads (464 boxes); two cars loaded tightly with cartons (986), no chimneys; three cars with cartons (946) in 4-carton unit chimney pattern; two cars with two-layers of boxes (464) plus one deck layer of cartons; and two cars with one layer of boxes (232) plus two deck layers of cartons. Also included were the following orange loads: One car with standard load (462 boxes); one car with solid cartons (990), no chimneys; one car with two layers of boxes (462) plus one deck layer of cartons; one two-layers of boxes; (152) against walls and ends of car and center filled with cartons (680); and one car of 676 cartons, plus 154 boxes in one end of car.

Citrus in cartons should be shipped in fan equipped cars. Fans have for long been considered a benefit in standard box loads but it is now clear that they are of even greater advantage when cars are loaded with cartons.

Wall flues in cars have not been considered to offer any advantage in standard citrus loads since the bulge of the box, loaded against the wall, provides air space between the wall and the load, unless exception is made for the two solid carton loads which went as far as Belen under standard

ventilation. There were locations in these cars having temperatures high enough to be dangerous for "weak" lemons.

Oranges warm when loaded in cartons may be expected to remain warm to destination regardless of the type of refrigeration service selected. The results of the tests indicated that for satisfactory and safe shipping of oranges in cartons a method of precooling before packing must be developed, or some type of vented carton must be adopted.

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Members of the test party were:

E. M. Harvey, U. S. Department of Agriculture
E. P. Atrops, " " " "
Howard B. Johnson, U. S. Department of Agriculture
Wm. R. Wright " " " "
H. A. Silva, Santa Fe Refrigerator Department

TABLE 3 . LOADING DATA AND ARRIVAL CONDITION OF LOADS. (PARTLY ADAPTED FROM RR PERISHABLE INSPECTION AGENCY)

Car	Shipper	Destination and loading and unloading date	Commodity and load consist	Icing service	Arrival condition of load	Recoopering	Nature of breakage	Some commodity temperatures (Manual)
A RD 14679 Fan car No wall flues Fans "on"	Sunkist Growers - - Placentia Orange Growers	New York - - July 9 July 20	Oranges 152 bxs. 1/ 680 ctns. 2/ one row boxes at each wall and one stack at each bunker on end two high - balance of load ctns.	PI Std. Refrigeration HS	Good order load except ctns. with loose cover flaps. Ctns. rigid and free of moisture	179 pkgs. 4 boxes 175 ctns. (one rpt. stated 216 ctns.)	Bxs.loose broken sides. Ctns. Unglued flaps, some creasing	Doorway Bxs. T 56° M 57° B 54° Ctns. T 58° M 59° B 52° Quarter-length T 51° M 53° B 48°
B RD 13153 Fan car Wall flues Fans "on"	Sunkist Growers - - Placentia Mutual	New York -- July 9 July 20	Oranges Std. load 462 boxes	PI Std. Refrigeration HS	Intact except rows out of alignment	18 pkgs.	Loose, broken strapping, sprung broken covers	T 56° M 44° B 43°
C RD 13152 Fan car Wall flues Fans "on"	American Fruit Growers - - Placentia Coop.	Providence - - July 9 July 19-22	Oranges 154 bxs. 2 layers in 1st eleven stacks 676 ctns.- 5 layers 5 rows crosswise 1 row lengthwise	PI Std. Refrigeration HS	Intact except 5-6 inches of lengthwise slack. Some tilting. Ctns.slightly damp doorway, otherwise clean,dry, no scuffing	29 pkgs. all boxes	Cut sides	Doorway T B 49° 48° Qtr.length 41° -

1/ bxs = standard orange or lemon boxes. 2/ ctns. = ½ box size fiber board cartons.

TABLE 3 CONT.

Car	Shipper	Destination and loading and unloading date	Commodity and load consist	Icing service	Arrival condition of load	Recoopering	Nature of breakage	Some commodity temperatures (Manual)
D RD 12707 Fan car Wall flues Fans (off"	Sunkist Growers - - Corona Foothill	New York - - July 9 July 20	Lemons 464 bxs -2 layers 196 ctns -1 layer 4-unit chimney pattern	PI Repl. 1 RI (Belen) FB	Intact through load	3 pkgs.	Loose strapping	Near doorway quarterlength near 3rd stack T M B 61° 59° 54° 63° 54° 54° 64° 56° 49°
E RD 12936 Fan car Wall flues Fans "on"	Sunkist Growers - - Corona Foothill	New York - - July 9 July 20	Lemons 464 bxs -2 layers 196 ctns -1 layer 4-unit chimney pattern	PI Repl. 1 RI (Belen) FB	Intact through load	10 pkgs.	Sprung covers	Near doorway Quarterlength near 3rd stack T M B 62° 60° 52° 64° 54° 50° 60° 54° 50°
F RD 13160 Fan car Wall flues Fans "on"	Mutual Orange Distributors - - Redlands Foothill	Boston - - July 9 July 23-24	990 ctns. 495 sealed 495 "ventilated" All phenodor treated	PI Std. Refrigeration FB	Intact through load. Sealed ctns. very moist inside. Vented ctns. dry.	None	--	Doorway Sealed ctns. T M B 54° 53° 46° Ventilated ctns. 52° 49° 43°
G RD 13161 Fan car Wall flues Fans "on"	American Fruit Growers - - Eadington Fruit Company	New York - - July 9 July 20-21	Oranges 462 bxs -2 layers 189 ctns -1 layer 4-unit chimney pattern	Dry car loaded I I Std. Refrigeration HS	Intact except ctns. move 18-20 inches away from one end of car. Some upheaved, no moisture.	70 pkgs. 54 bxs. 16 ctns.	Boxes cut sides sprung straps. Ctns. loose flaps, squeezed	Top quarter-length wall row 50° and 51°, center row 50° and 49°.

TABLE 3 CONT.

Car	Shipper	Destination and loading and unloading date	Commodity and load consist	Icing service	Arrival condition of load	Recoopering	Nature of breakage	Some Commodity temperatures (Manual)
H RD 12923 Fan car Wall flues Fans "off"	Sunkist Growers - - Upland Lemon Growers	New York - - July 9 July 20	Lemons 946 ctns. in 4-unit chimney pattern	PI Repl. 1 RI at (Waynoka) FB	Good order except lengthwise row top layer creased 1st stack tilted to bunker No moisture rot.	None	—	Near doorway at quarter-length, near 3rd stack T M B 64° 60° 61° 66° 57° 50° 64° 59° 51°
I RD 12989 Fan Car Wall flues Fans on	Sunkist Growers - - Upland Lemon Growers	New York - - July 9 July 20	Lemons 946 ctns. loaded as car immediately above	PI Repl. 1 RI (Waynoka) FB	Intact through load 6-7 inches space between 1st stack and bunker. Ctns. free of moisture	None	--	Near doorway at quarterlength and near 3rd stack T N B 60° 59° 57° 65° 63° 60° 64° 64° 51°
J RD 13155 Fan car Wall flues Fans "on"	Sunkist Growers - - College Heights O and L	New York - - July 9 July 20	Lemons 945 ctns. loaded as car immediately above	PI Repl. 2 RI. (Belen) (Corwith) FB	Intact except 4-5 end stacks tilted toward bunker, 1st stack top layer creased no moisture reported	3 pkgs.	Loose flaps	Doorway T M B 57° 53° 49° Quarterlength T M B 59° 46° 44°
K RD 12949 Fan car Wall flues Fans "on"	Sunkist Growers - - San Dimas Lemon Assn.	New York - - July 9 July 20	Lemons Std. load 464 boxes	PI Repl. 1 RI (Waynoka) FB	Good order load	126 pkgs.	Loose strapping sprung covers, loose bottom slats	Near doorway T M B 59° 48° 48°

TABLE 3 CONT.

Car	Shipper	Destination and loading and unloading date	Commodity and load consist	Icing service	Arrival condition	Recoopering	Nature of breakage	Some commodity temperatures (Manual)
L RD 12982 Fan car Wall flues Fans "on"	Sunkist Growers - - San Dimas Lemon Assn.	New York - - July 9 July 20	Lemons Std. load 464 boxes	PI Std. Refrigeration HS	Intact through load	25 pkgs.	Sprung broken covers cut sides	Doorway T. M B 60° 47° 47°
M PFE 8356 Electric Fan car Wall flues Fans "on"	Sunkist Growers - - Oxnard Citrus	New York - - July 8 July 20	Lemons 232 bxs. -1 layer 384 ctns. -2 layers 4-unit chimney pattern	Dry car loaded I.I. 1 RI (Belen) FB	Intact through load. Ctns.rigid and free of moisture	3 pkgs. Boxes only	Sprung covers	Doorway T M B 56° 59° 48°
N PFE 9661 Electric Fan car Wall flues Fans "off"	American Fruit Growers - - Ventura Pacific	Albany - - July 8 July 18-19	Lemons 986 ctns of two types. 426 "rectangular" 560 "square" solid ctn.load (i.e. no chimneys)	Dry car loaded Std. vent to Belen then iced FB	Intact except 1st stack 4 inches away from bunker	None	One loose flap noted	Doorway T B 63° 58°
O PFE 9440 Electric Fan car Wall flues Fans "on"	American Fruit Growers - - Ventura Pacific	Providence - - July 8 July 19	Lemons Load consist same as in car immediately above	Dry car loaded Std.vent to Belen then iced FB	Intact through load Slt. tilting of stack at one bunker no damage	None	--	Doorway T B 52° 53°
P PFE 9010 Electric Fan car Wall flues Fans "off"	Sunkist Growers - - Somis Lemon Assn.	New York - - July 8 July 20	Lemons 232 bxs. -1 layer 392 ctns. -2 layers in 4-unit chimney pattern but only one row of chimney through car	Dry car loaded I I -1 RI (Belen) FB	Intact through load except few ends of ctns. pushed in	25 pkgs. Boxes only	Not recorded	Near doorway Quarterlength and near 3rd stack M B 59° 53° 56° 46° 49° 54°

TABLE 4

ICING RECORD

		Date July	A Half Stage Fans On Pounds	B Half Stage Fans On Pounds	C Half Stage Fans On Pounds	D Full Bunker Fans Off Pounds	E Full Bunker Fans On Pounds	F Full Bunker Fans On Pounds	G Half Stage Fans On Pounds	H Full Bunker Fans Off Pounds
Preiced	San Bernardino 3 a.m.	8	6600	6600	6300	13,050	12,900	12,750		12,750
Initial Icing	Oxnard 9 p.m.	9								
	San Bernardino 1:30 p.m.	10							7000	
Replen-ished	San Bernardino 1:30 p.m.	10	5000	6400	4400	4125	4350	3400		3400
Reiced	Needles 7 a.m.	11	1200	1800	1500			1500	2100	
	Belen 11:30 a.m.	12	3350	3950	2550	2950	4100	3700	4525	
	Waynoka 10 a.m.	13	2300	3080	2750			3080	4300	5400
	Argentine 1 a.m.	14	1060	900	1060			1350	1260	
	Corwith 1 p. m.	15	3060	2870	3060			4020	3250	
	Marion 9 p.m.	15	1200	1500	1200			1800	1000	
	Hornell 4 p.m.	16	1600	1600	1500			1700	1600	
Total ice supplied to Jersey City			25,370	28,700	0	20,125	21,350	0	25,035	0
Total ice supplied to Albany			0	0	0	0	0	0	0	0
Total ice supplied to Providence			0	0	24,320	0	0	0	0	0
Total ice supplied to Boston			0	0	0	0	0	33,300	0	0
Ice remaining after arrival			2100	3000	3750	800	300	6840	1500	4250
Ice melted enroute			23,270	25,700	20,570	19,325	21,050	26,460	23,535	17,300
Ice supplied at destination			2000	2000	0	0	0	4000	4000	0

Note: Chunk ice was used for all icings of all test cars

TABLE 4 (CONT'D)

ICING RECORD

Test 1952-3
Lemons and
Oranges

		Date	I Full Bunker Fans On	J Full Bunker Fans On	K Full Bunker Fans On	L Half Stage Fans On	M Full Bunker Fans On	N Vent. to Belen F.B. Fans Off	O Vent. to Belen F.B. Fans On	P Full Bunker Fans Off
		July	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Preiced	San Bernardino 3 a.m.	8	12,900	13,500	12,450	6300				
Initial Icing	Oxnard 9 p.m.	9					11,500			11,500
	San Bernardino 1:30 p.m.	10								
Replenished	San Bernardino 1:30 p.m.	10	3050	3200	3650	4000				
Reiced	Needles 7 a. m.	11				1500				
	Belen 11:30 a.m.	12		3650		4800	5410	12,100	11,800	5000
	Waynoka 10:00 a. m.	13	6450		6800	2900				
	Argentine 1 a.m.	14				1625				
	Corwith 1 a. m.	15		7470		2680				
	Marion 9 p.m.	15				1200				
	Hornell 4 p. m.	16				1400				
Total ice supplied to Jersey City			22,400	27,820	22,900	26,405	16,910	0	0	16,500
Total ice supplied to Albany			0	0	0	0	0	12,100	0	0
Total ice supplied to Providence			0	0	0	0	0	0	11,800	0
Total ice supplied to Boston			0	0	0	0	0	0	0	0
Ice remaining after arrival			2830	5650	1880	1910	500	3600	100	3360
Ice melted enroute			19,570	22,170	21,020	24,495	16,410	8500	11,700	13,140
Ice supplied at destination			0	0	0	0	0	0	0	0

Note: Chunk ice was used for all icings of all test cars.

TABLE 5 - Car A

Test 1952-3
Oranges

TEMPERATURES IN TRANSIT

152 Standard boxes making up periphery; filled in with 680 cartons.
PI by Carrier, Repl., Standard Refrigeration HS. No flues. Fans on.

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	SS MB	SS MQ	SS MD	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
San Bernardino	9				Preiced by carrier at San Bernardino, California												
Placentia	9	3:40 PM	89°	88.5	83.0	73.5	78.5	73.0	72.5	72.0	71.0	55.0	70.5	72.0	72.5	66.0	71.7
San Bernardino	10	12 noon	96	69.0	77.0	76.5	73.0	75.0	76.5	72.5	73.0	59.0	65.0	72.0	77.5	68.2	71.5
					Replenished at San Bernardino												
Barstow	10	12 mid.	73	60.5	75.0	78.5	71.5	76.0	78.0	69.5	73.5	59.0	60.0	71.5	79.0	67.3	70.2
Needles	11	7:00 AM	89	53.5	73.0	76.0	67.5	73.3	74.0	66.5	70.0	57.5	59.5	69.5	75.5	64.7	68.2
					Reiced at Needles												
Winslow, Ariz.	11	10:30PM	72	54.5	72.5	73.5	62.5	69.0	69.5	61.0	65.0	56.0	60.0	69.0	73.0	60.7	67.3
Belen, N. M.	12	10:00 AM	84	53.0	71.0	72.0	60.0	67.0	67.0	59.0	63.0	51.0	59.0	68.0	71.0	57.7	66.0
					Reiced at Belen, New Mexico												
Amarillo, Texas	13	2:00 AM	69	49.0	68.0	69.0	57.0	62.5	63.5	55.0	59.0	49.5	56.5	65.0	66.5	54.5	62.7
Waynoka, Okla.	13	10:00 AM	82	49.0	66.5	67.0	55.5	60.0	61.0	53.5	56.5	49.0	53.5	64.0	64.0	53.0	60.5
					Reiced at Waynoka, Oklahoma												
Emporia, Kan.	13	8:00 PM	84	50.5	64.5	64.5	53.5	58.0	59.0	52.0	55.0	49.0	54.5	62.5	61.5	52.0	59.5
Argentine	13	12 mid.	72	50.0	63.5	63.5	53.0	57.0	58.5	51.0	54.0	50.5	54.0	61.5	60.0	51.8	58.5
					Reiced at Argentine, Kansas												
Shopton, Ia.	14	2:00 PM	82	53.0	62.0	62.5	52.0	55.5	56.5	49.5	53.0	48.0	53.0	60.0	58.0	50.2	57.0
Corwith, Ill.	15	12:30 AM	73	61.0	60.0	61.0	51.0	54.5	55.5	49.0	52.0	48.5	52.0	59.0	56.0	49.8	55.7
					Reiced at Corwith, Illinois												
Huntington, Ind.	15	5:00 PM	79	46.0	58.5	59.5	49.5	53.5	55.0	48.5	51.5	46.5	50.5	58.0	55.5	48.8	54.7
Marion, Ohio	15	9:00 PM	75	48.5	58.0	59.0	49.0	52.5	54.0	48.0	50.5	48.0	50.0	57.0	54.5	48.8	53.8
					Reiced at Marion, Ohio												
Hornell, N.Y.	16	4:00 PM	78	46.5	55.5	56.0	47.0	50.0	52.0	45.5	48.5	45.0	48.5	55.0	52.0	46.3	51.8
					Reiced at Hornell, New York												
Croxton, N.J.	17	11:30 AM	80	48.0	54.0	56.0	45.5	48.5	50.5	44.5	47.0	47.0	47.0	53.5	50.0	46.2	50.2
Jersey City	18	10:00 AM	80	53.5	54.0	54.0	45.5	49.0	52.0	46.5	49.0	48.0	45.5	53.0	51.5	49.8	50.0
Jersey City	19	10:00 AM	85	58.0	53.5	55.0	46.0	49.0	54.0	48.5	51.5	49.5	44.5	52.5	51.0	49.8	49.3
New York City	20	6:00 PM	90	86.0	53.5	56.0	49.5	50.0	56.5	49.0	55.0	48.5	45.0	52.5	52.0	50.8	49.8

Note: TB - top bunker TD - top doorway MQ - middle quarter BQ - bottom quarter MD - middle doorway
TQ - top quarter MB - middle bunker BB - bottom bunker BD - bottom doorway CL - centerline
SS - southside NS - northside

TABLE 6 - CAR B

Test 1952-3
Oranges

TEMPERATURES IN TRANSIT

462 Standard boxes PI by Carrier, Repl., Standard Refrigeration HS. Fans on

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	SS MB	SS MQ	SS MD	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
San Bernardino	9				Preiced by carrier at San Bernardino, California												
Placentia	9	3:30 PM	85°	87.0	53.5	81.0	82.5	82.0	82.0	82.5	83.0	82.0	79.5	80.0	73.0	82.5	77.5
San Bernardino	10	12 Noon	96	74.0	54.0	78.0	68.5	74.0	75.0	76.5	76.5	75.0	62.0	68.5	66.5	76.0	65.7
					Replenished at San Bernardino												
Barstow	10	12 Mid.	73	60.5	56.0	74.0	62.5	68.0	71.5	72.0	70.0	67.5	57.0	63.0	62.0	69.8	60.7
Needles	11	7: AM	89	57.5	54.0	69.5	59,0	60.0	68.0	64.5	63.0	60.5	56.0	62.5	58.5	62.7	59.0
					Reiced at Needles, California												
Winslow, Ariz.	11	10:30PM	72	50.5	56.0	63.0	56.0	54.5	62.0	59.5	54.5	54.5	55.0	60.5	56.0	56.2	57.2
Belen, N. M.	12	10:00AM	84	50.0	52.0	59.0	52.0	51.0	57.0	53.0	52.0	52.0	53.0	58.0	54.0	52.3	55.0
					Reiced at Belen, New Mexico												
Amarillo, Texas	13	2:00 AM	69	44.0	50.0	54.5	48.0	47.0	52.5	48.0	48.0	4.75	50.5	54.5	50.5	47.8	51.8
Waynoka, Okla.	13	10:00AM	82	44.5	48.5	52.5	46.5	45.0	50.0	47.0	46.0	46.0	49.0	53.0	49.0	46.3	50.3
					Reiced at Waynoka, Oklahoma												
Emporia, Kan.	13	8:00 AM	84	45.5	49.0	50.0	45.5	44.0	48.0	45.5	44.5	44.5	49.0	50.5	47.5	44.8	49.0
Argentine	13	12 Mid.	72	45.5	49.0	49.0	45.0	44.0	48.0	45.0	44.0	44.0	48.0	50.0	47.0	44.3	48.3
					Reiced at Argentine, Kansas												
Shopton, Ill.	14	2:00 PM	82	44.5	47.0	47.5	43.5	42.5	46.0	43.5	42.5	43.0	46.0	48.0	45.5	43.0	46.5
Corwith	15	12:30A	73	44.0	46.5	46.0	43.0	42.0	44.5	43.5	42.0	42.5	47.0	46.0	44.5	42.6	45.8
					Reiced at Corwith, Illinois												
Huntington, Ind.	15	5:00 PM	79	41.5	44.5	45.0	42.0	41.5	44.0	42.5	40.5	42.0	45.5	45.0	45.0	41.7	45.2
Marion, Ohio	15	9:00 PM	75	44.5	45.0	44.5	42.0	41.0	43.5	41.5	41.0	41.5	44.0	44.0	44.5	41.3	44.2
					Reiced at Marion, Ohio												
Hornell, N. Y.	16	4:00 PM	78	41.5	43.0	42.5	40.5	40.0	42.0	40.0	40.0	40.0	44.0	43.0	43.0	40.0	43.3
					Reiced at Hornell, New York												
Croxton, N. J.	17	11:30AM	80	45.0	43.5	41.5	40.0	40.0	41.0	40.5	39.5	40.0	45.0	42.0	42.5	40.0	43.2
Jersey City	18	10:00AM	80	48.0	42.0	42.0	39.0	41.0	43.0	42.0	41.5	42.0	42.0	42.0	43.5	41.8	42.5
Jersey City	19	10:00AM	85	52.0	43.5	42.5	39.5	42.5	44.5	44.0	43.5	43.0	42.0	42.0	43.5	43.5	42.5
New York	20	6:00 PM	90	86.0	45.0	43.0	40.0	44.0	48.0	46.0	46.0	45.0	40.5	42.0	44.0	45.7	42.2

TABLE 7 - Car C

Test 1952-3
Oranges

TEMPERATURES IN TRANSIT

676 fiber cartons - cable end; 154 standard boxes opposite end. Fans on.
PI by carrier, Repl., Standard Refrigeration HS.

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	SS MB	SS MQ	SS MD	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE BOTT.
San Bernardino	9				Preiced by carrier at San Bernardino, California												
Placentia	9	3:30 PM	75°	84.0	51.5	70.5	73.5	72.0	76.5	69.5	70.5	69.5	73.0	72.0	70.5	69.8	71.8
San Bernardino	10	12 Noon	96	63.0	49.5	73.5	69.5	72.0	74.0	69.0	69.0	69.5	63.0	67.5	68.0	69.5	66.2
					Replenished at San Bernardino												
Barstow	10	12 Mid.	73	53.5	50.5	76.5	69.5	72.0	74.0	65.0	71.5	70.5	58.0	65.0	67.5	69.0	63.5
Needles	11	7:00 AM	89	53.5	49.5	76.5	66.0	71.5	73.5	63.5	70.0	69.0	57.5	64.5	67.0	67.5	63.0
					Reiced at Needles												
Winslow, Ariz.	11	10:30PM	72	49.5	48.5	77.5	61.0	69.5	72.5	60.0	67.0	66.0	56.5	64.0	66.0	64.3	62.2
Belen. N. Mex.	12	10:00AM	84	49.0	46.0	77.5	66.5	67.5	71.0	57.5	65.0	63.5	54.0	62.5	65.5	62.0	60.7
					Reiced at Belen, New Mexico												
Amarillo, Texas	13	2:00 AM	69	45.5	44.5	77.5	--	64.0	69.5	55.5	62.5	61.5	52.5	61.5	64.0	59.8	59.3
Waynoka, Okla.	13	10:00AM	82	46.5	44.5	76.5	--	63.0	68.0	54.5	61.0	60.0	50.5	61.0	63.5	58.5	58.3
					Reiced at Waynoka, Oklahoma												
Emporia, Kansas	13	8:00 PM	84	47.0	44.5	76.0	--	61.5	65.5	54.0	58.5	58.5	52.5	59.5	61.5	57.0	57.8
Argentine	13	12 Mid.	72	48.0	45.5	75.5	--	63.0	66.5	53.0	59.5	58.0	52.0	60.5	62.5	56.8	58.3
					Reiced at Argentine, Kansas												
Shopton, Iowa	14	2:00 PM	82	46.5	43.0	74.5	--	61.5	65.0	51.5	57.5	56.5	50.5	59.5	61.0	55.2	57.0
Corwith, Ill.	15	12:30 A	73	45.0	42.5	73.5	--	59.5	63.5	51.0	57.0	55.5	49.5	58.0	59.5	54.5	55.7
					Reiced at Corwith, Illinois												
Huntington, Ind.	15	5:00 PM	79	42.5	42.0	73.0	72.5	59.5	63.0	51.0	56.0	55.0	48.5	58.0	59.5	54.0	55.3
Marion, Ohio	15	9:00 PM	75	45.4	42.5	72.5	59.5	59.0	62.5	50.0	56.0	55.0	47.5	55.5	59.0	53.3	54.0
					Reiced at Marion, Ohio												
Hornell, New Y.	16	4:00 PM	78	41.0	38.5	69.5	--	55.0	58.0	50.0	51.5	50.5	47.0	52.5	55.0	52.3	51.5
					Reiced at Hornell, New York												
Providence, R.I.	18	9:00 AM	80	48.5	42.0	66.5	45.5	53.5	58.5	56.0	52.0	50.5	43.5	54.0	56.0	52.8	51.2

TABLE 6 - Car D

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

464 Standard boxes; 190 fiber cartons as single deck. PI by carrier, Repl.,1 Reicing at Belen. Fans off. FB

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	SS MB	SS MQ	SS MD	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOP	AVE. BOT.
San Bernardino	9				Preiced by carrier at San Bernardino, California												
Corona, Calif.	9	5:00 PM	78	75.0	46.5	68.5	58.0	69.0	66.0	69.0	60.0	71.0	53.0	58.0	56.0	66.7	55.7
San Bernardino	10	12 Noon	96	67.5	44.0	66.5	54.0	56.0	60.5	66.0	56.0	70.0	45.5	49.0	52.0	64.0	48.8
					Replenished by carrier at San Bernardino												
Barstow	10	12 Mid.	73	61.0	42.0	65.0	51.5	55.0	59.0	65.0	55.0	68.0	42.0	47.0	50.0	62.7	46.3
Needles	11	7:00 AM	89	59.0	41.5	--	50.0	54.0	58.0	63.5	54.0	66.5	41.0	46.0	49.0	61.3	45.3
Winslow, Ariz.	11	10:30PM	77	60.5	43.0	62.0	49.0	53.0	58.0	62.0	54.0	65.0	41.0	46.0	48.0	60.3	45.0
Belen, N. M.	12	10:00AM	84	58.0	41.5	60.5	48.0	52.0	57.5	60.5	53.0	63.5	40.0	44.5	47.0	59.0	43.8
					Reiced at Belen, New Mexico												
Amarillo, Texas	13	2:00 AM	69	57.5	41.5	59.5	47.0	51.0	57.0	59.0	52.0	62.0	39.0	44.0	46.0	57.7	43.0
Waynoka, Okla	13	10:00AM	82	56.5	40.0	57.5	46.0	49.0	55.0	58.0	51.0	61.0	39.5	43.0	45.0	56.6	42.5
Emporia, Ka.	13	8:00 PM	84	61.0	43.0	58.0	47.0	50.5	56.0	57.5	49.5	60.0	39.0	44.5	45.5	55.7	43.0
Argentine	13	12 Mid.	72	57.5	42.5	57.5	47.0	50.0	56.0	58.0	49.0	59.5	38.5	44.0	45.0	55.5	42.5
Shopton, Iowa	14	2:00 PM	82	58.0	42.5	57.0	46.5	49.5	55.0	58.5	49.0	58.5	38.5	44.0	45.0	55.3	42.5
Corwith, Ill.	15	12:30 A	73	58.0	43.5	57.0	46.5	49.5	56.5	58.0	49.0	58.5	38.5	44.5	45.0	55.2	42.7
Huntington, Ind.	15	5:00 PM	79	59.0	43.0	56.0	46.5	48.5	55.0	58.0	49.5	58.0	38.5	44.0	45.0	55.2	42.5
Marion, Ohio	15	9:00 PM	75	60.0	44.0	57.0	47.0	49.0	54.5	57.5	50.0	58.0	39.0	44.5	45.0	55.2	42.8
Hornell, N. Y.	16	4:00 PM	78	63.5	45.5	56.5	47.0	49.0	59.5	58.0	50.5	58.0	39.0	45.0	45.0	55.5	43.0
Croxton, N. J.	17	11:30AM	80	63.0	44.5	57.0	[illegible]	49.0	55.0	60.5	51.0	56.0	40.0	45.5	45.5	55.8	43.7
Jersey City, N.J.	18	10:00AM	80	62.0	45.0	60.0	[illegible]	51.0	56.0	66.0	53.0	61.0	41.5	47.0	46.5	60.0	45.0
Jersey City	19	10:00AM	85	59.0	40.0	64.5	44.5	44.5	50.0	68.5	58.5	66.0	44.5	51.5	50.0	64.3	48.7
New York, N.Y.	20	6:00 PM	90	80.5	51.0	67.0	55.0	55.0	61.0	71.5	64.0	69.5	55.0	51.0	49.0	68.3	51.7

TABLE 9 - Car E

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

464 Standard boxes; 198 fiber cartons as single deck. PI by Carrier, Repl., 1 reicing at Belen. Fans on. FB

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	SS MB	SS MQ	SS MD	TB CL	TQ CL	TD CL	BB CL	BC CL	BD CL	AVE. TOPS	AVE. BOT.
San Bernardino	9				Preiced by carrier at San Bernardino, California												
Corona, Calif.	9	5:00 PM	84°	81.5	48.5	59.5	60.0	62.0	64.0	70.5	69.5	71.0	55.5	59.0	59.0	70.3	57.8
San Bernardino	10	12 noon	96	68.5	44.0	46.0	55.0	58.0	58.5	64.5	66.0	66.5	46.5	50.0	52.0	65.7	49.5
					Replenished at San Bernardino												
Barstow	10	12 Mid.	73	52.0	46.5	53.0	53.5	56.0	58.0	59.0	61.0	62.5	45.0	49.0	50.5	60.8	48.2
Needles	11	7:00 AM	89	49.5	46.5	51.0	50.5	53.5	57.5	56.0	57.0	58.5	46.0	49.0	49.5	57.2	48.2
Winslow, Ariz.	11	10:30PM	72	48.0	47.5	48.0	48.5	51.5	56.5	52.5	52.5	54.5	46.5	48.5	48.5	53.2	47.8
Belen, N. M.	12	10:00AM	84	46.5	45.5	46.0	46.0	49.5	54.5	48.5	50.0	50.5	47.0	47.0	46.5	49.7	46.8
					Reiced at Belen, New Mexico												
Amarilla, Texas	13	2:00 AM	69	42.5	44.5	43.0	44.0	47.0	51.5	45.0	46.5	47.0	44.0	45.0	44.5	46.2	44.5
Waynoka, Okla	13	10:00AM	82	44.0	44.0	42.0	44.0	45.5	50.5	44.0	45.5	45.5	43.5	44.5	44.0	45.0	44.0
Emporia, Kan.	13	8:00 PM	84	47.0	47.0	42.0	44.5	45.5	49.5	44.0	45.0	45.0	43.0	44.0	43.5	44.7	43.5
Argentine	13	12 Mid.	72	45.5	46.5	41.5	44.5	45.0	49.0	43.5	44.5	45.0	43.0	43.5	43.5	44.3	43.3
Shopton, Iowa	14	2:00 PM	82	47.5	45.5	41.5	44.0	44.5	48.5	43.5	44.5	44.5	43.0	43.5	43.5	44.2	43.3
Corwith, Ill.	15	12:30 A	73	45.0	46.0	41.5	44.0	44.5	48.0	43.5	44.5	44.0	43.0	43.5	43.0	44.0	43.2
Huntington, Ind.	15	5:00 PM	79	45.0	45.0	41.5	44.0	44.5	47.5	43.5	44.5	44.0	42.0	43.0	43.0	44.0	42.7
Marion, Ohio	15	9:00 PM	75	46.5	46.0	41.5	43.5	44.5	47.0	43.5	44.5	44.0	42.5	43.0	43.0	44.0	42.8
Hornell, N. Y.	16	4:00 PM	78	46.5	46.5	41.5	43.0	44.0	45.5	43.5	44.5	43.5	42.5	43.0	43.0	43.8	42.8
Croxton, N. J.	17	11:30AM	80	51.5	48.0	42.5	44.5	47.0	46.5	45.0	46.0	44.5	43.0	43.5	43.5	45.2	43.3
Jersey City	18	10:00AM	80	59.5	48.5	45.5	48.5	52.5	49.5	54.0	54.0	52.0	43.5	45.0	45.0	53.3	44.5
Jersey City	19	10:00AM	85	65.5	51.0	49.5	51.0	56.0	52.0	60.5	59.5	57.5	44.5	46.5	46.5	59.2	45.8
New York	20	6:00 PM	90	82.0	53.5	57.5	55.5	60.5	56.0	66.5	68.0	65.0	47.5	48.5	49.0	66.5	48.3

TABLE 10- Car F

Test 1952-3
Oranges

TEMPERATURES IN TRANSIT

495 ventilated cartons one end of car; 495 nonventilated cartons opposite end of car.
PI by carrier, Repl., Standard Refrigeration FB. Fans on.

Place	Date July	TIME	Out-side	V MD SS	NV MD SS	V MQ ss	NV MQ SS	V MD CL	NV MD CL	V TQ CL	V MQ CL	V BQ CL	NV TQ CL	NV MQ CL	NV BQ CL	V QL CL	NV QL CL
San Bernardino	9						Preiced by carrier at San Bernardino, California										
Redlands, Calif.	9	3:00 PM	98	81.5	84.0	82.0	82.5	81.0	83.5	74.0	81.5	80.0	83.5	82.5	83.0	78.5	83.0
San Bernardino	10	12 Noon	96	77.5	88.0	76.0	87.0	79.0	91.0	80.5	78.5	59.5	88.0	89.0	78.0	72.8	85.0
							Replenished at San Bernardino										
Barstow	10	12 Mid.	73	74.5	88.0	72.0	86.0	77.5	92.5	74.0	76.0	58.0	87.0	92.0	76.0	69.3	85.0
Needles	11	7:00 AM	89	74.0	86.0	69.5	84.0	75.0	92.0	62.5	74.0	61.5	82.5	91.5	75.0	66.0	83.0
							Reiced at Needles										
Winslow, Ariz.	11	10:30PM	72	68.5	83.0	63.0	81.0	69.5	91.5	51.0	68.0	64.0	76.0	91.5	74.5	61.0	80.7
Belen, N. M.	12	10:00AM	84	62.0	80.5	57.5	78.5	64.0	90.0	47.0	62.5	60.0	72.5	91.0	74.0	56.5	79.2
							Reiced at Belen, New Mexico										
Amarillo, Texas	13	2:00 AM	69	55.5	77.5	51.0	75.5	57.0	88.0	43.5	55.0	60.5	68.0	89.0	72.5	53.0	76.5
Waynoka, Okla.	13	10:00AM	82	52.5	75.5	48.0	74.0	53.5	86.0	42.5	51.5	58.0	66.0	88.0	71.5	50.7	75.2
							Reiced at Waynoka, Oklahoma										
Emporia, Kan.	13	8:00 PM	84	50.0	73.0	45.5	71.5	51.0	84.5	41.5	48.0	55.0	63.5	86.0	70.5	48.2	73.3
Argentine	13	12 Mid.	72	49.0	72.0	44.5	70.5	49.5	83.5	41.5	47.0	53.5	62.5	85.0	70.0	47.3	72.5
							Reiced at Argentine, Kansas										
Shopton, Ia.	14	2:00 PM	82	47.5	70.5	43.5	68.5	47.5	81.5	40.5	44.5	50.5	61.0	84.0	68.5	45.2	71.2
Corwith, Ill.	15	12:30 A	73	46.5	68.0	43.0	67.5	46.0	80.0	40.5	43.0	48.0	59.5	82.5	68.0	43.8	70.0
							Reiced at Corwith, Illinois										
Huntington, Ind.	15	5:00 PM	79	46.0	68.0	42.0	66.0	45.0	78.0	40.0	42.5	46.0	58.5	81.5	66.5	42.8	68.8
Marion, Ohio	15	9:00 PM	75	45.0	66.0	41.0	65.0	44.0	77.0	39.0	41.0	45.0	58.5	81.0	66.0	41.7	68.5
							Reiced at Marion, Ohio										
Hornell, N.Y.	16	4:00 PM	78	43.0	66.0	40.0	62.0	42.0	75.0	38.0	40.0	43.0	56.0	78.5	64.5	40.3	66.3
							Reiced at Hornell, New York										
Boston, Mass.	19	8:15 AM	78	--	61.0	40.5	59.0	42.0	69.5	41.0	38.5	39.5	57.5	76.5	61.5	39.7	65.2
Boston, Mass.	23	2:45 PM	95	48.5	59.0	42.0	58.0	45.0	65.0	44.0	40.0	38.5	63.5	73.5	56.5	40.8	64.5

Note: V - ventilated. NV - nonventilated.

TABLE 11 - Car G

Test 1952-3
Oranges

TEMPERATURES IN TRANSIT

462 Standard boxes; 189 fiber cartons as single deck. Dry car loaded, Initially iced, Standard Refrigeration HS. Fans On.

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
Fullerton, Cal.	9	6:15 PM	84°	85.5	79.0	76.5	77.0	75.0	75.0	71.5	71.0	72.5	76.0	78.0	74.5	71.7	76.2
San Bernardino	10	12 Noon	96	86.5	70.0	77.0	74.0	77.5	75.5	74.0	74.0	75.0	71.0	75.5	72.5	74.3	73.0
							Initially iced at San Bernardino, California										
Barstow	10	12 Mid.	73	67.0	59.5	75.5	64.5	76.0	74.0	72.0	74.0	67.5	60.0	71.0	69.5	71.2	66.8
Needles	11	7:00 AM	89	63.0	56.5	72.0	68.5	75.5	71.0	66.5	69.5	69.5	58.0	68.0	67.5	68.5	64.5
							Reiced Needles										
Winslow, Ariz.	11	10:30 PM	72	56.5	53.0	66.5	52.5	77.5	65.5	57.5	62.0	61.0	56.0	65.0	64.5	60.2	61.8
Belen, N. M.	12	10:00 AM	84	55.5	50.5	61.0	50.0	61.5	60.5	53.5	58.5	57.5	52.0	60.5	60.5	56.5	57.7
							Reiced at Belen, New Mexico										
Amarillo, Texas	13	2:00 AM	69	52.5	49.0	55.5	47.5	59.0	55.5	49.5	53.5	52.5	50.0	56.0	57.0	51.8	54.3
Waynoka, Okla.	13	10.00 AM	82	48.5	47.5	52.5	45.5	61.5	53.0	48.0	51.5	50.5	48.0	54.0	55.0	50.0	52.3
							Reiced at Waynoka, Oklahoma										
Emporia, Kan.	13	8:00 PM	84	53.5	48.5	50.0	46.0	52.0	50.5	46.0	51.5	48.5	47.0	52.0	53.5	48.7	50.8
Argentine	13	12 Mid.	72	49.0	47.5	48.5	45.5	51.0	49.0	45.5	51.5	48.0	46.0	51.0	52.5	48.3	49.8
							Reiced at Argentine, Kansas										
Shopton, Ia.	14	2:00 PM	82	52.0	45.0	46.5	44.0	47.5	47.0	43.5	54.5	46.5	44.0	49.0	50.5	48.2	47.8
Corwith, Ill.	15	12:30 A	73	47.5	46.0	45.5	43.5	51.5	46.5	43.0	54.0	45.5	44.0	47.5	49.5	47.5	47.0
							Reiced at Corwith, Illinois										
Huntington, Ind.	15	5:00 PM	79	44.0	44.5	44.0	42.5	51.5	45.0	42.0	49.5	44.5	41.5	46.5	47.5	45.3	45.2
Marion, Ohio	15	9:00 PM	75	46.0	45.5	43.5	42.5	52.0	44.0	42.0	47.5	44.0	42.0	45.5	47.0	44.5	44.8
							Reiced at Marion, Ohio										
Hornell, N. Y.	16	4:00 PM	78	53.5	44.0	42.0	41.5	54.5	42.5	40.5	44.5	42.5	41.5	44.0	45.0	42.5	43.5
							Reiced at Hornell, New York										
Croxton, N. J.	17	11:30 AM	80	51.5	43.0	41.0	40.0	65.5	41.5	40.0	40.5	42.0	41.5	43.0	43.5	40.8	42.7
Jersey City	18	10:00 AM	80	49.5	40.0	41.5	39.0	--	41.5	40.5	41.0	42.0	38.0	42.0	41.5	41.2	40.5
Jersey City	19	10:00 AM	85	53.5	41.5	40.0	38.5	62.0	41.5	43.0	42.5	43.5	36.0	41.0	41.0	43.0	39.3
New York	20	6:00 PM	90	57.5	62.0	--	41.0	63.0	46.0	48.5	48.0	48.5	34.0	44.5	44.5	48.3	41.0

TABLE 12 - Car H

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

946 fiber cartons chimneyed. PI by Carrier, Repl., one reicing at Waynoka, Oklahoma. Fans off. FB

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
San Bernardino	9						Preiced by carrier at San Bernardino, California										
Upland, Cal.	9	2:30 PM	95°	85.5	51.5	58.5	58.5	58.5	61.5	60.5	61.5	59.5	58.5	58.0	59.5	60.5	58.7
San Bernardino	10	12 Noon	96	58.5	47.5	62.5	58.5	60.5	63.0	60.5	62.0	61.5	54.5	58.5	58.5	61.3	57.2
							Replenished at San Bernardino										
Barstow	10	12 Mid.	73	60.5	47.5	63.0	57.5	60.5	64.0	59.5	62.0	62.5	51.5	56.5	58.0	61.3	55.3
Needles	11	7:00 AM	89	58.5	46.5	62.5	56.5	60.5	62.0	58.5	61.0	62.0	50.0	56.0	56.5	60.5	54.2
Winslow, Ariz.	11	10:30 PM	72	60.5	47.5	62.5	55.5	60.5	62.0	58.5	61.0	62.5	48.0	53.5	55.5	60.7	52.3
Belen, N. M.	12	10:00 AM	84	58.0	45.5	62.0	54.5	60.0	61.5	57.0	60.5	62.0	46.5	52.5	55.0	59.8	51.3
Amarillo, Texas	13	2:00 AM	69	59.5	47.0	61.5	54.5	59.5	60.5	57.0	60.0	62.5	45.5	51.5	54.5	59.8	50.5
Waynoka, Okla.	13	10:00 AM	82	59.5	46.5	61.0	54.0	59.0	60.5	56.5	59.5	62.0	45.0	51.5	54.0	59.3	50.2
							Reiced at Waynoka, Oklahoma										
Emporia, Kan.	13	8:00 PM	84	62.0	47.0	60.5	53.5	59.0	60.0	56.0	59.5	62.0	44.5	50.5	53.5	59.2	49.5
Argentine	13	12 Mid.	72	58.5	45.5	60.0	53.0	58.5	59.5	55.5	59.0	61.5	44.5	50.5	53.0	58.7	49.3
Shopton, Ia.	14	2:00 PM	82	57.5	44.0	59.5	52.0	58.5	59.0	54.5	58.0	61.0	43.5	49.5	52.5	57.8	48.5
Corwith, Ill.	15	12:30 AM	73	56.5	44.5	59.0	51.5	58.5	58.5	54.0	57.0	61.0	43.5	49.0	52.5	57.3	48.3
Huntington, Ind.	15	5:00 PM	79	57.5	43.5	58.0	49.5	56.5	58.0	52.5	56.5	60.0	42.5	48.5	51.0	56.3	47.3
Marion, Ohio	15	9:00 PM	75	58.0	45.0	58.0	49.5	56.5	57.5	52.5	56.5	60.0	42.5	48.0	51.0	56.3	47.2
Hornell, N.Y.	16	4:00PM	78	58.5	45.5	57.0	49.0	55.5	56.5	52.5	56.0	59.5	41.5	47.5	50.0	56.0	46.3
Croxton, N. J.	17	11:30 AM	80	58.0	45.5	56.5	48.5	55.5	56.5	53.0	56.0	59.0	41.5	47.0	49.5	56.0	46.0
Jersey City	18	10:00 AM	80	60.5	45.0	56.5	49.0	55.5	56.5	56.0	58.0	60.5	41.5	47.0	50.0	58.2	46.2
Jersey City	19	10:00 AM	85	64.5	46.5	56.0	50.5	55.5	56.5	59.0	60.5	62.0	41.5	47.0	50.0	60.5	46.2
New York	20	6 :00 PM	90	84.5	50.0	56.5	53.5	56.5	58.5	63.5	64.5	64.5	42.5	48.5	50.0	64.2	47.0

TABLE 13 - Car I

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

946 fiber cartons chimneyed. Fans on. PI by Carrier, Repl., 1 reicing, Waynoka, Oklahoma. FB

Place	Date July	TIME	Out-side	TOP AIR	BOT. AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
San Bernardino	9						Preiced by Carrier at San Bernardino, California										
Upland, Calif.	9	11:30 PM	94°	83.5	49.5	58.5	58.0	59.5	63.0	58.5	60.5	62.5	58.0	58.5	60.5	60.5	59.0
San Bernardino	10	12 Noon	96	57.5	50.5	59.0	57.5	59.5	63.5	57.0	60.0	61.0	53.0	58.5	59.5	59.3	57.0
							Replenished at San Bernardino										
Barstow	10	12 Mid.	73	49.5	49.0	59.0	56.0	59.0	62.5	55.5	58.5	59.5	49.0	56.0	57.5	57.8	54.2
Needles	11	7:00 AM	89	48.5	47.0	58.5	54.5	58.0	61.0	53.0	55.5	57.0	48.5	55.0	56.0	55.2	53.2
Winslow, Ariz.	11	10:30 PM	72	47.5	49.0	57.5	52.0	56.5	59.5	49.5	52.5	54.5	48.0	53.5	54.5	52.2	52.0
Belen, N. M.	12	10:00 AM	84	46.5	46.0	56.5	50.5	55.0	58.5	48.5	50.5	52.5	47.0	53.0	53.5	50.5	51.2
Amarillo, Texas	13	2:00 AM	69	46.0	47.0	55.5	49.0	53.5	56.5	47.0	49.5	51.5	47.0	51.5	54.0	49.3	50.8
Waynoka, Okla.	13	10:00 AM	82	48.0	46.5	55.0	48.5	53.0	56.0	46.5	48.5	50.5	47.0	51.0	53.5	48.5	50.5
							Reiced at Waynoka, Oklahoma										
Emporia, Kan.	13	8:00 PM	84	47.5	56.0	54.0	48.0	52.5	55.5	45.5	47.5	49.5	46.5	50.0	53.0	47.5	49.8
Argentine	13	12 Mid.	72	56.0	45.5	53.5	48.0	52.0	54.5	45.0	47.0	48.5	46.0	49.0	52.5	46.8	49.2
Shopton, Ia.	14	2:00 PM	82	48.5	44.5	52.5	47.0	51.0	54.0	44.5	46.0	48.0	45.5	48.5	52.0	46.2	48.7
Corwith, Ill.	15	12:30 AM	73	46.5	45.5	51.5	46.5	50.5	53.5	44.0	46.0	47.0	45.0	48.5	51.0	45.7	48.2
Huntington, Ind.	15	5:00 PM	79	44.5	44.0	51.0	45.5	49.5	53.0	43.5	45.5	46.5	44.5	47.5	50.5	45.2	47.5
Marion, Ohio	15	9:00 PM	75	45.5	45.5	50.5	45.5	49.5	52.5	43.0	45.0	46.5	44.0	47.0	50.0	49.8	47.0
Hornell, N. Y.	16	4:00 PM	78	47.5	46.5	49.5	47.5	50.5	52.5	43.0	45.0	46.0	44.0	47.0	50.0	44.7	47.0
Croxton, N. J.	17	11:30 AM	80	48.0	45.5	49.0	44.5	48.0	50.5	43.0	44.5	45.5	44.0	46.5	48.0	44.3	46.2
Jersey City, NJ	18	10:00 AM	80	56.5	47.0	48.5	45.5	48.5	51.5	48.5	48.5	49.5	43.0	46.5	48.0	45.5	45.8
Jersey City	19	10:00 AM	85	61.5	50.5	49.0	47.5	50.0	53.0	53.5	53.0	53.5	42.5	46.5	48.5	50.0	45.8
New York, N.Y.	20	6:00 PM	90	83.0	54.5	50.0	51.0	52.5	55.5	59.5	58.5	59.5	44.5	48.0	49.5	59.2	47.3

TABLE 14 - Car J

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

955 fiber cartons chimneyed. PI by carrier, Repl., 2 reicings - Belen and Corwith. Fans on. FB

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
San Bernardino	9						Preiced by carrier at San Bernardino, California										
Claremont, Cal.	9	11:00 AM	77°	76.0	48.0	64.0	64.5	58.0	58.0	64.5	60.5	75.5	64.0	64.5	59.5	66.8	62.7
San Bernardino	10	12 noon	96	60.0	48.5	66.5	63.0	64.0	64.5	61.5	64.5	62.5	56.5	61.5	61.0	62.8	59.7
							Replenished at San Bernardino										
Barstow	10	12 Mid.	73	52.0	50.0	66.0	59.5	63.5	64.5	58.5	63.5	62.0	51.0	58.5	60.0	61.3	56.5
Needles	11	7:00 AM	89	50.5	48.0	65.0	57.5	62.5	64.0	55.5	60.5	60.0	50.5	58.0	59.0	58.7	55.8
Winslow, Ariz.	11	10:30 PM	72	49.5	50.5	62.5	54.5	60.5	62.0	52.0	56.5	56.5	49.5	56.5	57.0	55.0	54.3
Belen, N. M.	12	10:00 AM	84	48.0	47.0	61.0	52.0	56.5	60.5	50.0	54.0	54.5	48.5	55.0	56.5	52.8	53.3
							Reiced at Belen, New Mexico										
Amarillo, Tex.	13	2:00 AM	69	45.0	46.5	58.5	49.5	54.0	58.0	47.5	51.0	52.0	47.5	53.0	54.5	50.2	51.7
Waynoka, Okla.	13	10:00 AM	82	45.5	46.0	57.5	48.5	52.5	57.0	46.0	50.0	50.5	47.0	52.5	53.5	48.8	51.0
Emporia, Kan.	13	8:00 AM	84	50.5	50.0	56.5	47.5	51.5	55.5	45.5	49.5	49.5	46.5	52.0	52.5	48.2	50.3
Argentine	13	12 Mid.	72	48.5	48.5	56.0	47.0	51.5	55.0	45.0	49.0	49.0	46.5	51.5	52.0	47.7	50.0
Shopton, Ia.	14	2:00 PM	82	51.0	47.0	54.5	46.5	50.5	53.5	44.5	49.0	48.5	46.0	51.0	51.0	47.3	49.3
Corwith, Ill	15	12:30 AM	73	51.0	48.0	54.0	46.5	51.0	52.5	44.5	48.5	48.0	46.0	50.5	50.5	47.0	49.0
							Reiced at Corwith, Illinois										
Huntington, Ind.	15	5:00 PM	79	47.5	44.0	53.0	45.5	50.5	51.5	43.5	47.5	47.5	45.0	50.0	50.0	46.2	48.3
Marion, Ohio	15	9:00 PM	75	49.0	44.5	52.5	45.0	51.5	51.0	42.5	47.0	46.5	44.5	49.5	50.5	45.3	48.2
Hornell, N. Y.	16	4:00PM	78	43.5	44.5	50.5	44.0	50.0	48.5	41.5	45.0	45.0	43.5	47.5	47.5	43.8	46.2
Croxton, N. J.	17	11:30 AM	80	46.0	43.5	49.0	43.0	46.5	47.5	41.0	44.5	44.0	42.5	46.5	46.5	43.2	45.2
Jersey City	18	10:00 AM	80	52.5	43.0	48.0	42.5	46.0	47.5	43.0	46.5	46.0	40.5	45.5	46.0	42.5	44.0
Jersey City	19	10:00 AM	85	54.5	43.0	47.0	39.0	43.5	46.5	43.0	46.0	46.5	36.5	43.5	44.0	45.2	41.3
New York, N.Y.	20	6:00 PM	90	83.0	45.0	46.5	43.0	46.0	49.0	51.5	52.5	51.5	43.5	45.5	46.0	51.8	45.0

TABLE 15 - Car K

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

464 Standard boxes. PI by Carrier, Repl., 1 reicing at Waynoka, Oklahoma. Fans on. FB

Place	Date July	TIME	Out-Side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
San Bernardino	9						Preiced by carrier at San Bernardino, California										
San Dimas, Cal.	9	6:00 PM	93°	83.5	50.5	67.5	58.5	67.0	70.5	70.5	68.5	70.0	66.5	64.5	68.0	69.7	66.3
San Bernardino	10	12 noon	96	66.5	48.0	65.5	61.5	63.5	66.5	67.0	66.5	68.0	59.5	57.5	59.5	67.2	58.8
							Replenished at San Bernardino										
Barstow	10	12 Mid.	73	55.5	51.5	61.5	57.5	59.0	61.5	61.0	61.5	63.0	55.0	56.0	56.5	61.8	55.8
Needles	11	7:00 AM	89	52.5	57.0	58.0	55.5	55.0	57.5	56.0	56.0	58.5	52.5	56.0	57.0	56.8	55.2
Winslow, Airz.	11	10:30 PM	72	50.0	58.5	55.0	52.5	51.5	54.0	52.0	51.5	56.5	51.5	55.5	56.5	53.3	54.5
Belen, N. M.	12	10:00 AM	84	48.5	48.5	52.5	51.0	49.0	51.5	49.5	49.0	54.0	50.0	53.5	54.5	49.8	50.8
Amarillo, Texas	12	2:00 AM	69	48.5	53.5	51.0	50.0	48.0	50.5	48.5	48.0	50.0	49.0	52.5	55.5	48.8	52.3
Waynoka, Okla.	13	1[illegible]:00 AM	82	50.0	51.5	50.0	49.5	47.5	49.5	48.0	47.0	49.0	48.5	52.0	52.5	48.0	51.0
							Reiced at Waynoka, Oklahoma										
Emporia, Kan.	13	8:00 PM	84	47.5	49.5	47.5	48.0	45.0	47.5	45.5	44.5	46.5	47.5	49.5	51.5	45.5	49.5
Argentine	13	12 Mid.	72	46.0	48.0	46.5	47.0	44.5	46.5	45.0	43.5	45.5	47.0	48.5	50.0	44.7	48.5
Shopton, Ia.	14	2:00 PM	82	46.5	46.5	45.5	45.5	43.0	45.0	43.5	42.5	44.5	46.0	47.0	48.5	43.5	47.2
Corwith, Ill.	15	12:30 AM	73	45.5	47.0	44.5	45.0	42.5	44.5	43.0	42.5	44.0	45.0	46.5	48.5	43.2	46.7
Huntington, Ind.	15	5:00 PM	79	46.0	47.5	45.0	45.0	43.5	45.0	43.0	42.5	44.0	45.0	45.5	47.0	43.2	45.8
Marion, Ohio	15	9:00 PM	75	45.5	48.5	44.0	43.5	41.5	43.5	42.5	41.5	44.5	44.5	45.0	45.5	42.8	45.0
Hornell, N. Y.	16	4:00 PM	78	46.0	46.5	42.5	43.0	41.0	42.5	42.0	41.0	42.0	43.0	44.0	45.5	41.7	44.2
Croxton, N. J.	17	11:30 AM	80	47.5	45.5	42.0	42.5	41.0	42.5	41.5	40.5	41.5	42.5	43.0	43.5	41.2	43.0
Jersey City	18	10:00 AM	80	57.0	45.5	43.5	44.5	44.0	46.0	48.0	44.0	44.0	44.0	44.5	45.0	45.3	44.5
Jersey City	19	10:00 AM	85	62.0	48.0	44.5	46.5	46.0	48.0	53.5	48.0	47.5	43.0	45.0	46.0	49.7	44.7
New York, N.Y.	20	6:00 PM	90	87.5	49.0	48.5	50.5	50.5	52.0	61.0	54.5	53.5	44.5	46.0	47.5	56.3	46.0

TABLE 16 - Car L

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

464 Standard boxes. PI by Carrier, Repl., Standard Refrigeration HS. Fans On.

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
San Bernardino	9					Preiced by carrier at San Bernardino, California											
San Dimas, Cal.	9	6:00 PM	92°	81.0	54.0	66.5	66.5	66.0	73.0	68.0	68.0	70.5	62.0	64.5	70.0	68.8	65.5
San Bernardino	10	12 Noon	96	58.0	51.0	65.0	62.0	64.0	68.0	66.5	68.0	70.0	56.0	58.5	62.0	68.2	58.8
						Replenished at San Bernardino											
Barstow	10	12 Mid.	73	58.0	50.0	62.5	58.0	59.5	64.0	63.5	62.0	66.0	53.0	57.5	59.0	63.8	56.5
Needles	11	7:00 AM	89	55.0	49.0	60.0	56.0	55.5	59.5	60.0	56.0	60.5	53.0	57.0	59.0	58.8	56.3
						Reiced at Needles											
Winslow, Ariz.	11	10:30 PM	72	52.0	50.0	56.5	53.0	52.5	55.5	55.5	52.0	55.0	52.0	55.5	58.0	54.2	55.2
Belen, N. M.	12	10:00 AM	84	50.0	48.0	54.0	50.0	50.0	52.5	52.5	49.0	52.0	49.5	53.0	56.0	51.2	52.8
						Reiced at Belen, New Mexico											
Amarillo, Tex.	13	2:00 AM	69	46.0	47.0	50.5	47.0	47.0	49.0	49.0	45.5	51.5	47.5	50.0	53.5	48.7	50.3
Waynoka, Okla.	13	10:00 AM	82	47.0	46.0	49.0	45.5	45.5	48.0	47.5	44.5	50.5	47.0	48.5	52.5	47.5	49.3
						Reiced at Waynoka, Oklahoma											
Emporia, Kan.	13	8:00 PM	84	49.5	48.0	48.0	45.0	45.0	47.0	46.0	43.5	46.0	46.0	48.0	51.0	45.2	48.3
Argentine	13	12 Mid.	72	47.0	46.0	47.0	44.5	44.0	46.0	45.5	43.0	46.0	45.0	47.0	50.0	44.8	47.3
						Reiced at Argentine, Kansas											
Shopton, Ia.	14	2:00 PM	82	46.0	44.5	45.5	43.5	43.0	44.5	44.0	42.0	44.0	44.0	45.5	48.0	43.3	45.8
Corwith, Ill.	15	12:30 AM	73	46.0	44.5	44.5	43.0	43.0	44.0	43.5	42.0	43.5	44.0	45.0	50.0	43.0	46.3
						Reiced at Corwith, Illinois											
Huntington, Ind.	15	5:00 PM	79	44.0	44.0	44.0	42.0	42.0	44.0	43.0	41.5	43.0	43.0	44.0	46.5	42.5	44.5
Marion, Ohio	15	9:00 PM	75	44.0	45.0	43.0	42.0	42.0	43.0	42.5	41.0	42.5	42.5	43.5	46.0	42.0	44.0
						Reiced at Marion, Ohio											
Hornell, N. Y.	16	4:00 PM	78	43.0	44.0	41.5	41.0	49.0	42.0	41.0	40.0	41.0	44.0	42.0	45.0	40.7	43.7
						Reiced at Hornell, New York											
Croxton, N. J.	17	11:30 AM	80	44.5	42.0	40.5	40.0	39.5	41.0	40.5	39.0	40.0	41.5	41.0	43.0	39.8	41.8
Jersey City	18	10:00 AM	80	49.5	40.5	41.5	40.0	41.5	43.0	41.5	41.5	42.5	39.5	42.0	43.5	41.8	41.7
Jersey City	19	10:00 AM	85	54.0	42.0	42.0	40.5	42.5	44.0	42.0	43.0	43.5	39.5	42.0	43.5	42.8	41.7
New York, N. Y.	20	6:00 PM	90	85.0	46.0	43.0	44.0	46.0	47.0	46.0	49.5	46.0	41.0	43.5	45.0	47.2	43.2

TABLE 17 .- Car M

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

232 Standard Boxes - 1 layer; 384 fiber cartons as 2 deck layers chimneyed.
Dry car loaded - initially iced at Oxnard, 1 reicing at Belen, New Mexico. Fans on. FB

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
Hueneme, Cal.	8	2:30 PM	62°	66.0	61.5	63.5	63.0	63.5	63.0	63.0	62.5	64.5	63.0	63.0	63.0	63.3	63.0
					Initially iced at Oxnard, California												
San Bernardino	10	12 Noon	96	57.0	39.0	57.5	50.5	52.5	54.0	57.0	59.0	61.5	51.0	52.0	50.0	59.2	51.0
Barstow	10	12 Mid.	73	50.0	42.0	55.5	49.0	50.5	52.5	55.5	59.0	60.0	50.0	50.0	48.0	58.2	49.3
Needles	11	7:00 AM	89	46.0	42.5	54.5	47.5	48.0	49.0	54.0	57.0	59.0	51.0	50.0	46.0	56.7	49.0
Winslow, Ariz.	11	10:30 PM	72	47.0	43.0	53.0	46.0	46.5	48.0	51.0	54.0	56.0	51.0	50.0	45.0	53.7	48.7
Belen, N. M.	12	10:00 AM	84	45.5	42.0	51.0	44.5	44.5	45.0	49.0	52.0	54.5	49.5	49.5	44.0	51.8	47.7
					Reiced at Belen, New Mexico												
Amarillo, Tex.	13	2:00 AM	69	44.0	41.0	49.0	42.5	43.0	43.5	46.0	49.0	51.5	48.0	48.0	42.0	48.8	46.0
Waynoka, Okla.	13	10:00 AM	82	42.5	40.5	48.5	41.5	41.5	42.5	45.5	48.0	50.0	47.0	47.5	41.5	47.8	45.3
Emporia, Kan.	13	8:00 AM	84	45.5	42.0	47.5	42.0	42.0	43.0	44.5	47.0	49.0	45.0	47.0	41.5	46.8	44.5
Argentine	13	12 Mid.	72	42.5	41.0	46.5	41.0	41.5	42.0	43.5	45.5	48.0	44.0	46.5	41.0	45.7	43.8
Shopton, Ia.	14	2:00 PM	82	46.5	41.5	45.5	41.0	41.0	42.0	42.5	45.0	47.5	43.5	45.5	40.5	45.0	43.2
Corwith, Ill.	15	12:30 AM	73	43.5	41.0	44.0	41.0	41.0	42.0	42.0	44.0	46.0	43.0	45.0	40.5	44.0	42.8
Huntington, Ind.	15	5:00 PM	79	42.0	41.0	44.0	41.0	42.0	42.0	41.5	43.5	45.5	43.0	44.0	41.0	43.5	42.7
Marion, Ohio	15	9:00 PM	75	42.0	41.5	43.5	41.0	41.5	42.0	41.5	43.5	45.5	43.0	44.0	41.0	43.5	42.7
Hornell, N. Y.	16	4:00 PM	78	42.5	42.0	43.0	42.0	41.0	41.0	41.0	43.0	44.5	42.5	43.0	41.0	42.8	42.4
Croxton, N. J.	17	11:30 AM	80	44.0	42.5	42.5	40.5	41.0	41.5	41.0	42.0	44.0	42.5	43.0	40.0	42.3	41.8
Jersey City,	18	10:00 AM	80	55.0	45.5	43.5	43.5	44.0	45.0	43.5	44.0	45.5	42.5	43.5	42.0	44.3	42.7
Jersey City	19	10:00 AM	85	59.5	47.0	44.0	45.5	46.0	47.5	48.0	47.0	49.5	42.5	44.0	43.0	48.2	43.2
New York, N.Y.	20	6:00 PM	90	83.5	49.5	50.0	49.0	49.0	51.5	53.0	51.5	53.5	43.5	56.0	45.5	52.7	48.3

TABLE 18 - Car N

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

426 rectangular fiber cartons; 560 square fiber cartons in cable end.
Dry car loaded - standard ventilation to Belen, New Mexico then initially iced. Fans off. FB

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
Montalvo, Cal.	8	11:00 AM	63°	65.0	61.5	61.0	61.5	62.0	63.0	61.0	62.0	62.5	60.5	62.5	--	61.8	61.5
San Bernardino	10	12 noon	96	78.0	64.5	65.0	65.5	63.0	67.0	67.0	68.0	67.0	64.0	64.0	64.5	67.3	64.2
Barstow	10	12 Mid.	73	71.0	69.0	65.0	66.5	65.0	67.0	68.0	68.0	68.0	65.0	65.0	65.5	68.0	65.2
Needles	11	7:00 AM	89	79.0	76.0	65.0	67.0	65.5	68.5	69.0	68.5	68.0	67.0	66.0	66.5	68.5	66.5
Winslow, Ariz.	11	10:30 PM	72	73.0	72.5	65.0	69.5	66.5	69.0	70.0	70.0	69.5	69.0	68.0	67.0	69.8	68.0
Belen, N. M.	12	10:00 AM	84	76.5	73.0	65.5	69.5	67.5	73.5	69.5	69.0	69.0	69.0	68.5	68.5	69.2	68.7
						Initially iced at Belen, New Mexico											
Amarillo, Tex.	13	2:00 AM	69	65.5	51.5	66.0	67.5	67.0	--	68.5	69.0	69.0	65.0	67.0	--	68.8	66.0
Waynoka, Okla.	13	10:00 AM	82	64.0	49.5	66.0	65.5	66.5	--	66.5	68.0	69.0	61.5	65.0	--	67.8	63.3
Emporia, Kan.	13	8:00 PM	84	66.5	50.0	66.5	62.5	66.0	--	64.5	67.5	68.5	57.0	62.0	65.5	66.8	61.5
Argentine	13	12 Mid.	72	63.5	48.0	66.5	61.0	65.0	--	63.0	67.0	68.0	55.0	61.0	63.5	66.0	59.8
Shopton, Ia.	14	2:00 PM	82	63.0	48.0	66.5	58.5	64.0	73.5	61.5	66.5	67.5	52.0	58.0	62.0	65.2	57.3
Corwith, Ill.	15	12:30 AM	73	62.0	46.5	66.5	56.5	63.0	--	60.0	65.5	67.5	49.0	56.0	61.0	64.3	55.3
Huntington, Ind.	15	5:00 PM	79	62.5	45.5	65.5	54.5	61.0	--	59.0	64.5	66.5	47.0	54.0	59.0	63.3	53.3
Marion, Ohio	15	9:00 PM	75	62.0	47.0	65.0	54.0	61.0	66.5	59.0	64.0	66.0	47.0	54.0	58.0	63.0	53.0
Hornell, N. Y.	16	4:00 PM	78	63.0	46.5	65.0	52.0	59.0	--	58.0	64.0	66.0	44.0	52.0	57.0	62.7	51.0
Albany,	17	5:40 PM	88	62.5	49.0	65.0	51.0	59.0	71.5	59.0	65.0	66.0	43.0	51.0	58.0	63.3	50.7
Albany	18	5:00 AM	76	63.5	49.0	66.0	52.5	59.5	70.5	61.5	66.5	67.0	43.5	54.5	57.0	65.0	51.7

TABLE 19 - Car 0

Test 1952-3
Lemons

TEMPERATURES IN TRANSIT

Dry car loaded - Standard ventilation to Belen then initially iced FB
426 rectangular fiber cartons; 560 square fiber cartons in cable end. Fans on

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
Montalvo, Cal.	8	11:15 AM	65°	65.5	59.5	63.0	61.5	62.5	63.0	61.5	61.5	62.5	60.0	63.5	67.0	61.8	63.5
San Bernardino	10	12 noon	96	79.0	65.5	65.0	65.0	65.5	66.5	65.5	65.5	66.5	63.5	65.5	67.5	65.8	65.5
Barstow	10	12 Mid.	73	71.5	69.5	65.0	66.5	66.0	67.0	69.0	67.5	68.5	64.0	65.5	67.5	68.3	65.7
Needles	11	7:00 AM	89	78.5	73.0	66.0	67.5	67.0	67.5	69.5	68.5	69.0	65.0	66.0	68.5	69.0	66.5
Winslow, Ariz.	11	10:30 PM	72	73.5	72.5	66.5	69.0	67.5	67.5	71.0	69.5	70.5	66.0	68.0	69.0	70.3	67.7
Belen, N. M.	12	10:00 AM	84	76.5	72.0	67.0	69.5	68.5	69.0	70.5	69.0	69.5	66.5	68.5	69.5	69.7	68.2
					Initially iced at Belen, New Mexico												
Amarillo, Tex.	13	2:00 AM	69	50.5	44.5	66.5	66.5	67.0	67.5	61.5	63.0	64.0	64.0	66.0	69.5	62.8	66.5
Waynoka, Okla.	13	10:00 AM	82	57.0	44.0	65.5	62.0	64.5	65.5	56.5	59.5	60.5	60.5	64.0	68.0	58.8	64.2
Emporia, Kan.	13	8:00 AM	84	50.0	45.5	63.5	58.5	61.5	63.5	52.5	56.5	57.5	57.0	61.5	65.0	55.5	61.2
Argentine	13	12 Mid.	72	49.5	43.5	63.0	56.5	60.0	62.0	50.5	55.0	56.5	55.5	60.0	63.5	54.0	59.7
Shopton, Ia.	14	2:00 PM	82	46.5	44.5	60.5	53.0	58.0	60.0	48.0	53.0	54.0	53.0	58.0	61.5	51.7	57.5
Corwith, Ill.	15	12:30 AM	73	47.5	43.5	59.5	50.5	56.0	58.0	46.5	51.5	52.5	50.0	56.5	59.5	50.2	55.3
Huntington, Ind.	15	5:00 PM	79	46.0	44.5	58.0	49.0	54.5	56.5	45.5	49.5	51.5	47.5	54.5	58.0	48.8	53.3
Marion, Ohio	15	9:00 PM	75	47.0	45.0	57.5	49.0	59.5	56.0	45.5	49.5	51.0	47.0	53.5	57.5	48.7	52.7
Hornell, N. Y.	16	4:00 PM	78	47.5	45.0	55.0	47.0	51.5	54.0	44.5	47.5	49.5	46.0	52.5	56.5	47.2	51.7
Providence, R.I.	18	9:00 AM	80	54.0	52.5	51.5	45.5	48.5	50.0	46.5	46.5	48.5	44.0	50.0	54.5	47.2	49.5

TABLE 20 - Car P

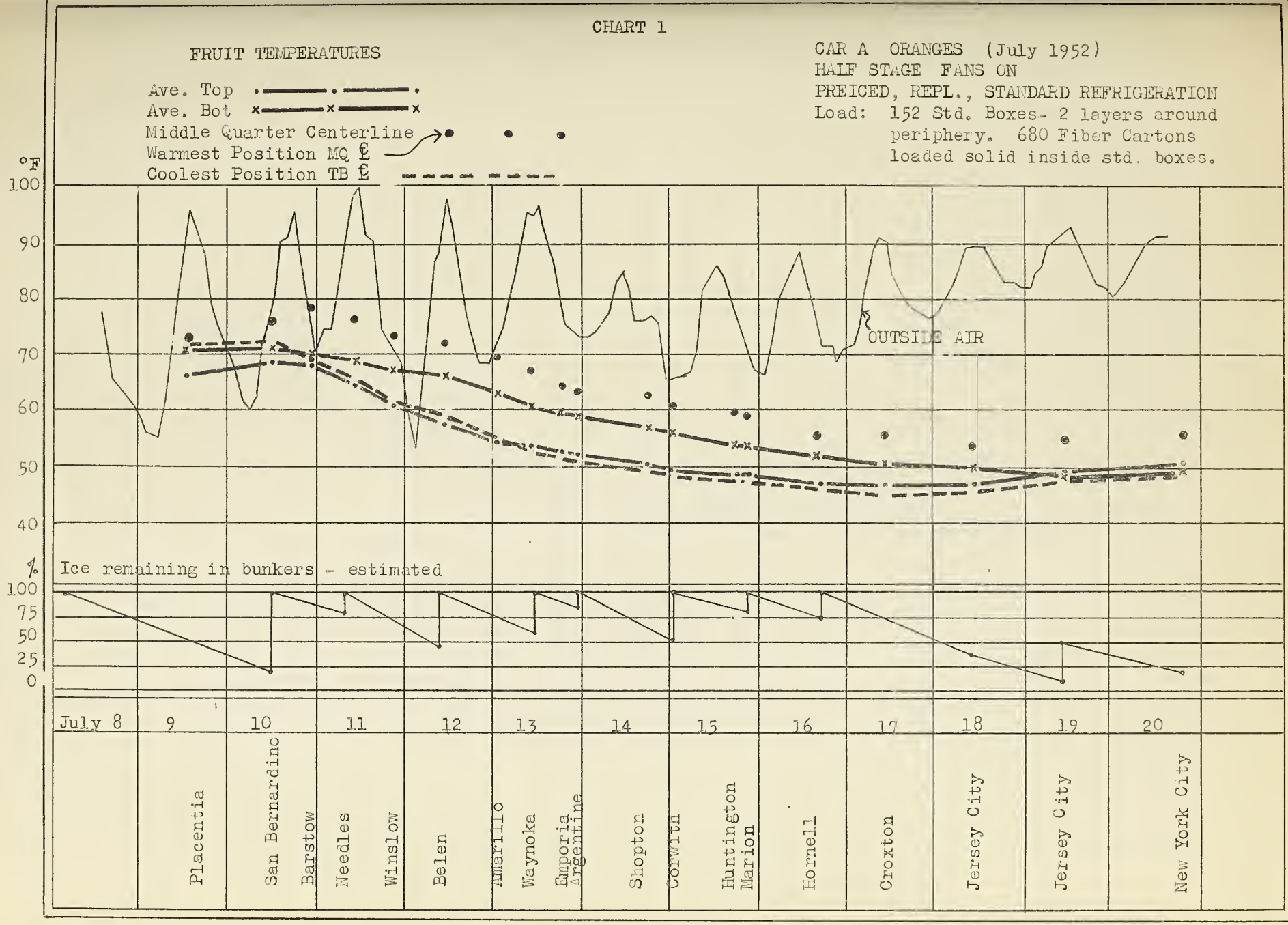
Test 1952-3
Lemons

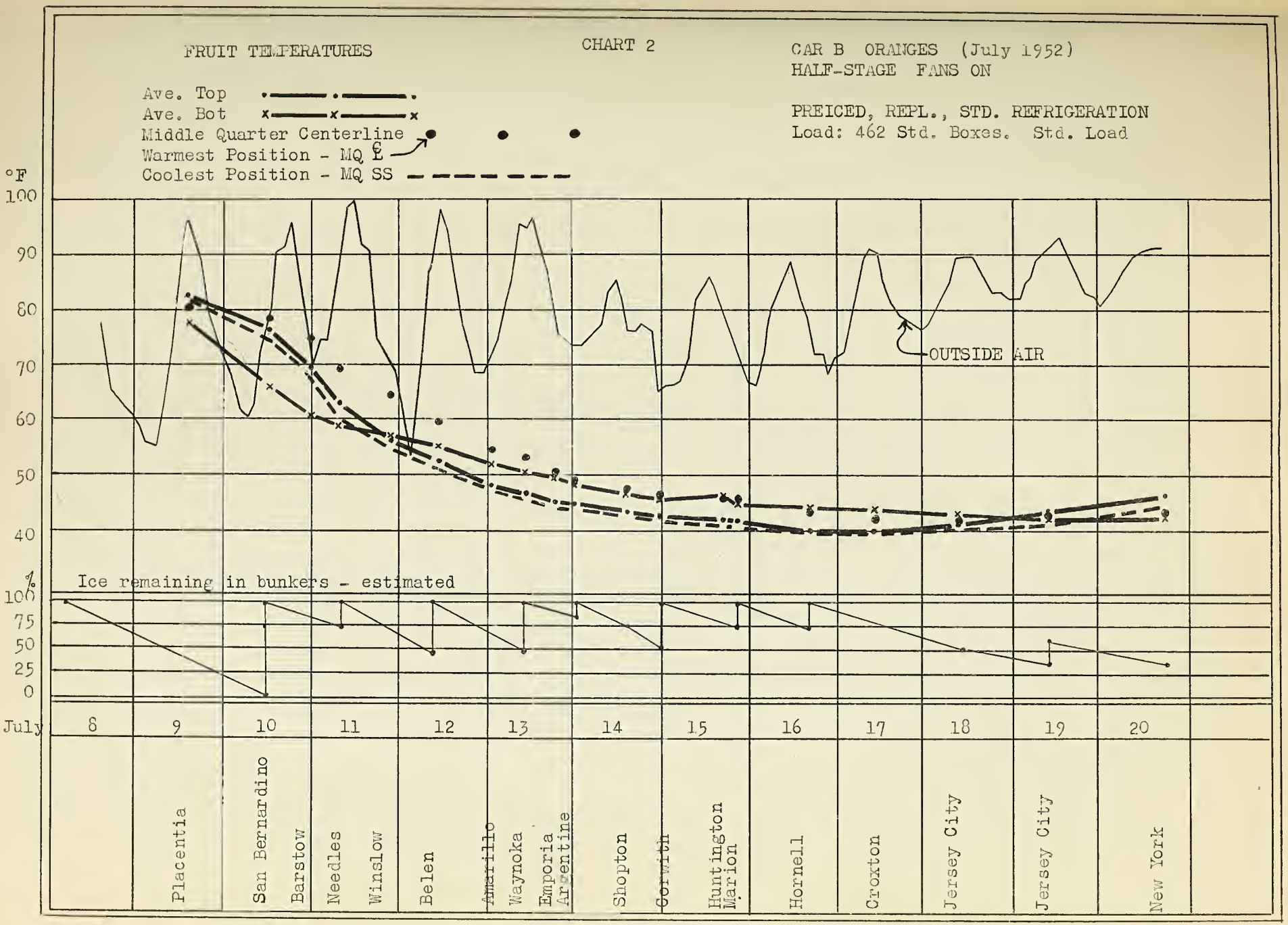
TEMPERATURES IN TRANSIT

232 Standard boxes - 1 layer; 392 Fiber cartons as 2 deck layers chimneyed.
Dry car loaded - initially iced, 1 reicing Belen, New Mexico. Fans Off FB

Place	Date July	TIME	Out-side	TOP AIR	BOT AIR	MQ CL	MB SS	MQ SS	MD SS	TB CL	TQ CL	TD CL	BB CL	BQ CL	BD CL	AVE. TOPS	AVE. BOTT.
Oxnard, Cal.	8	12:10PM	64°	63.0	58.0	63.5	63.0	63.5	63.0	64.5	65.0	64.0	63.0	63.0	63.0	64.5	63.0
					Initially iced at Oxnard, California												
San Bernardino	10	12 noon	96	58.5	40.5	53.5	51.5	54.5	60.0	54.0	60.0	59.0	45.0	47.0	49.5	57.7	47.2
Barstow	10	12 Mid.	73	58.0	40.0	53.0	50.5	53.5	58.0	53.0	59.0	58.0	42.5	44.5	47.0	56.7	44.7
Needles	11	7:00AM	89	57.0	39.5	53.0	50.5	53.5	58.0	52.5	59.0	58.5	42.0	44.0	46.5	56.7	44.2
Winslow, Ariz.	11	10:30PM	72	59.0	42.5	52.5	50.5	53.0	56.5	53.0	59.0	58.0	42.0	44.0	46.0	56.7	44.0
Belen, N. M.	12	10:00AM	84	57.0	41.0	52.0	49.5	52.0	56.0	52.5	58.5	58.0	40.5	43.0	45.5	56.3	43.0
					Reiced at Belen, New Mexico												
Amarillo, Tex.	13	2:00AM	69	56.5	40.5	50.5	48.5	51.5	55.0	51.5	58.0	57.5	40.0	42.0	44.5	55.7	42.2
Waynoka, Okla.	13	10:00AM	82	56.0	40.5	50.0	47.0	50.5	54.5	51.0	57.5	56.5	39.5	41.5	44.0	55.0	41.7
Emporia, Kan.	13	8:00AM	84	59.0	42.0	49.5	46.5	50.5	54.0	51.0	57.5	56.5	39.5	41.0	44.0	55.0	41.5
Argentine	13	12 Mid.	72	56.5	40.5	49.0	46.0	50.0	53.5	50.5	57.0	56.0	39.0	40.5	44.0	54.5	41.2
Shopton, Ia.	14	2:00PM	82	56.0	40.5	48.0	45.0	49.0	53.0	50.0	56.0	55.5	39.0	40.5	43.5	53.8	41.0
Corwith, Ill.	15	12:30AM	73	55.0	40.0	47.5	45.0	48.0	52.0	50.0	55.5	55.0	38.5	40.0	43.0	53.5	40.5
Huntington, Ind.	15	5:00PM	79	55.5	40.0	47.0	44.0	48.0	52.0	49.5	55.5	54.5	38.0	40.0	43.0	53.2	40.3
Marion, Ohio	15	9:00PM	75	56.0	41.0	47.0	45.0	48.0	52.0	50.0	55.0	54.5	38.0	40.0	43.0	53.2	40.3
Hornell, N. Y.	16	4:00PM	78	56.0	40.0	46.0	44.5	48.0	50.5	49.5	54.5	54.0	38.0	40.0	42.5	53.0	40.2
Croxton, N.J.	17	11:30AM	80	56.0	40.5	47.0	45.5	47.5	50.5	50.0	55.0	54.0	39.0	40.5	43.5	53.0	41.0
Jersey City	18	10:00AM	80	58.0	43.5	47.5	46.0	48.0	50.5	52.0	55.5	54.0	39.5	41.0	44.0	53.8	41.5
New Jersey	19	10:00AM	85	62.0	46.0	48.0	47.0	48.5	50.5	54.5	57.0	55.5	40.5	42.0	45.5	55.7	42.7
New York, N. Y.	20	6:00PM	90	80.0	44.5	49.5	49.0	50.0	51.5	58.0	59.0	57.0	43.0	44.0	47.0	58.0	44.7

CHART 1


FRUIT TEMPERATURES
Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position MQ £
Coolest Position TB £
CAR A ORANGES (July 1952)
HALF STAGE FANS ON
PREICED, REPL., STANDARD REFRIGERATION
Load: 152 Std. Boxes- 2 layers around periphery. 680 Fiber Cartons loaded solid inside std. boxes.
°F
100
90
80
70
60
50
40
OUTSIDE AIR
%
Ice remaining in bunkers - estimated
100
75
50
25
0
July 8
9
10
11
12
13
14
15
16
17
18
19
20
Placentia
San Bernardino
Barstow
Needles
Winslow
Belen
Amarillo
Waynoka
Emporia
Argentine
Shopton
Corwith
Huntington
Marion
Hornell
Croxton
Jersey City
Jersey City
New York City

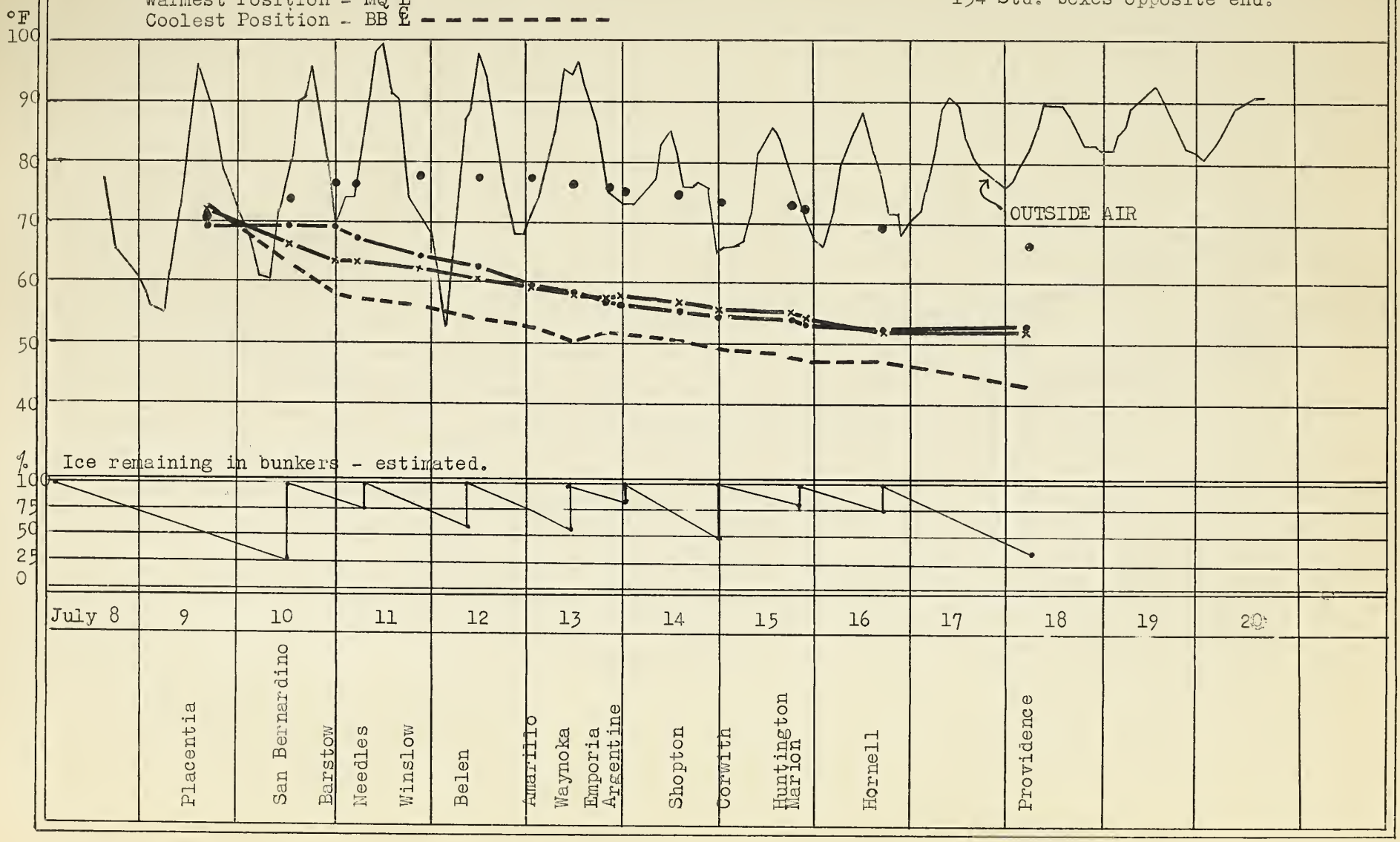

FRUIT TEMPERATURES
CHART 2
CAR B ORANGES (July 1952)
HALF-STAGE FANS ON
PREICED, REPL., STD. REFRIGERATION
Load: 462 Std. Boxes. Std. Load
Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position - MQ ℄
Coolest Position - MQ SS
°F
100
90
80
70
60
50
40
OUTSIDE AIR
Ice remaining in bunkers - estimated
%
100
75
50
25
0
July
8
9
10
11
12
13
14
15
16
17
18
19
20
Placentia
San Bernardino
Barstow
Needles
Winslow
Belen
Amarillo
Waynoka
Emporia
Argentine
Shopton
Corwith
Huntington
Marion
Hornell
Croxton
Jersey City
Jersey City
New York

FRUIT TEMPERATURES

CHART 3

CAR C ORANGES (July 1952)
HALF-STAGE FANS ON

PREICED, REPL., STD. REFRIGERATION
Load: 676 fiber cartons cable end and
154 Std. boxes opposite end.



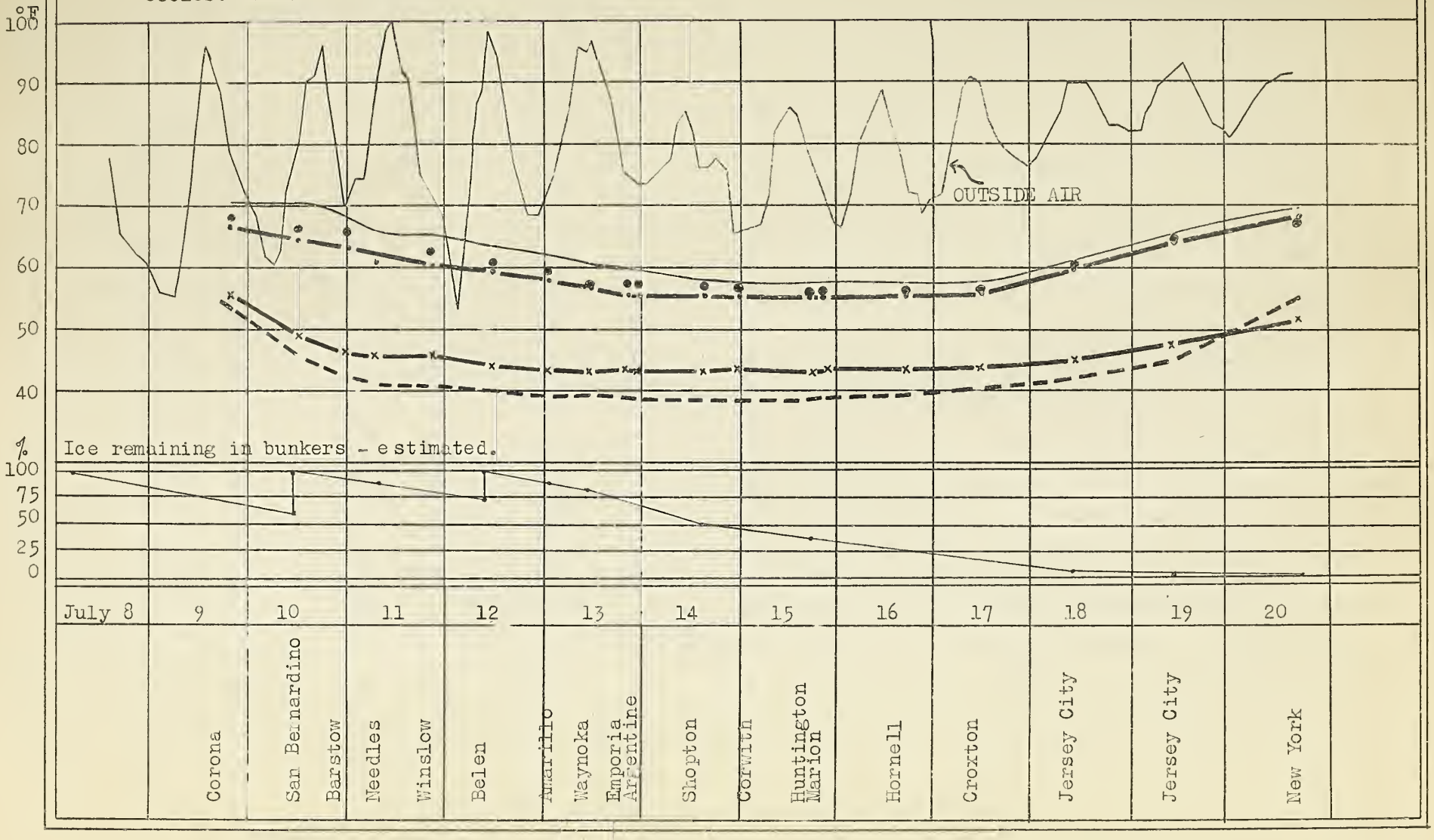
FRUIT TEMPERATURES

CHART 4

CAR D LEMONS (July 1952)
FULL BUNKER FANS OFF

Ave. Top
Ave. Bot
Middle Quarter ℄
Warmest Position - TD ℄
Coolest Position - BB ℄

PREICED, REPL. with one reicing at Belen
Load: 464 Std. Boxes and
198 Fiber cartons, single deck layer.



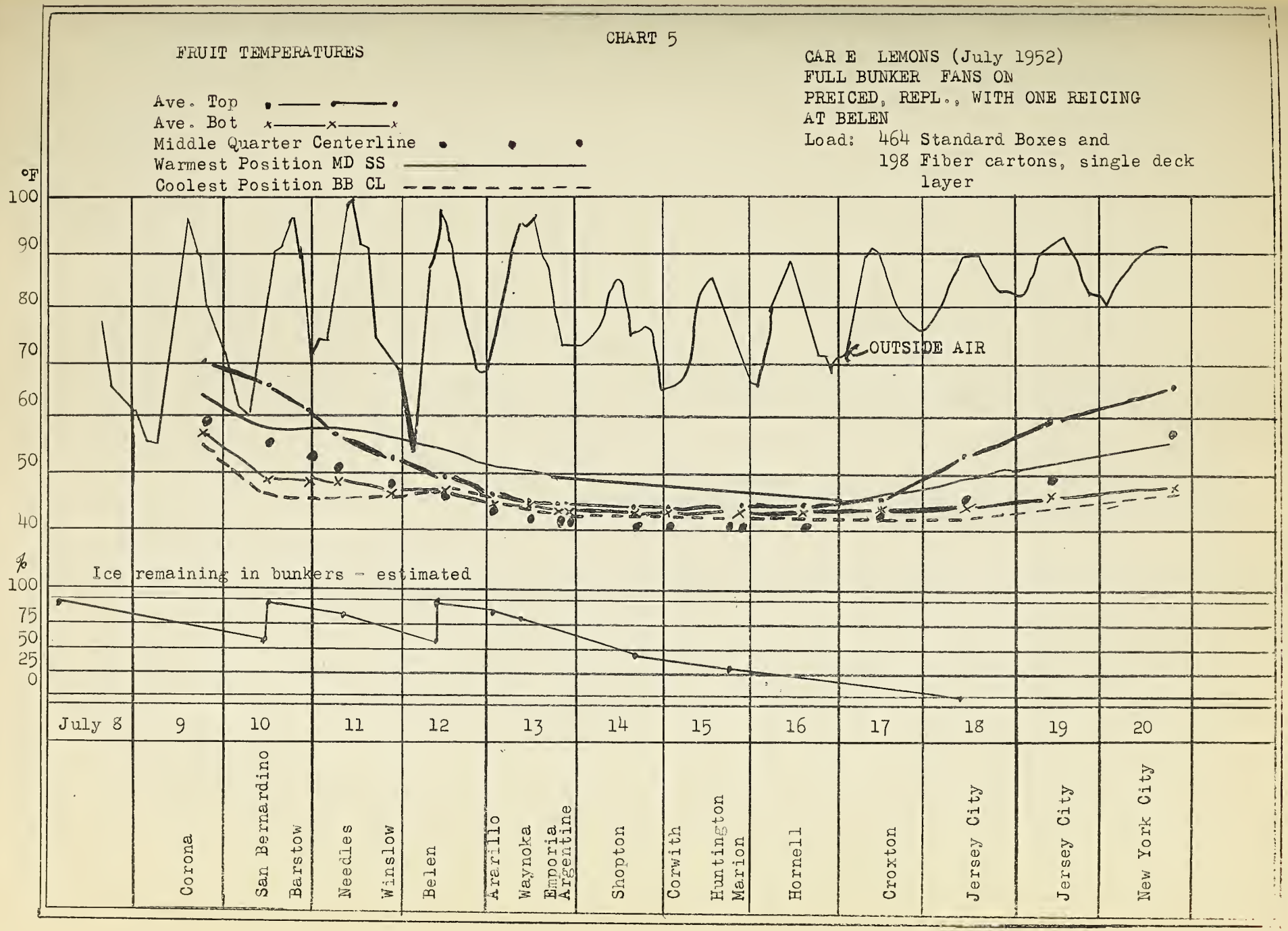


CHART 5
FRUIT TEMPERATURES
Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position MD SS
Coolest Position BB CL
CAR E LEMONS (July 1952)
FULL BUNKER FANS ON
PREICED, REPL., WITH ONE REICING
AT BELEN
Load: 464 Standard Boxes and
198 Fiber cartons, single deck
layer
°F
100
90
80
70
60
50
40
OUTSIDE AIR
%
Ice remaining in bunkers - estimated
100
75
50
25
0
July 8
9
10
11
12
13
14
15
16
17
18
19
20
Corona
San Bernardino
Barstow
Needles
Winslow
Belen
Amarillo
Waynoka
Emporia
Argentine
Shopton
Corwith
Huntington
Marion
Hornell
Croxton
Jersey City
Jersey City
New York City

CHART 6

FRUIT TEMPERATURES

CAR F ORANGES (July 1952)
FULL BUNKER FANS ON
PREICED, REPL., STD. REFRIGERATION
Load: 495 Vented cartons in one end
495 Non-vented in opposite end

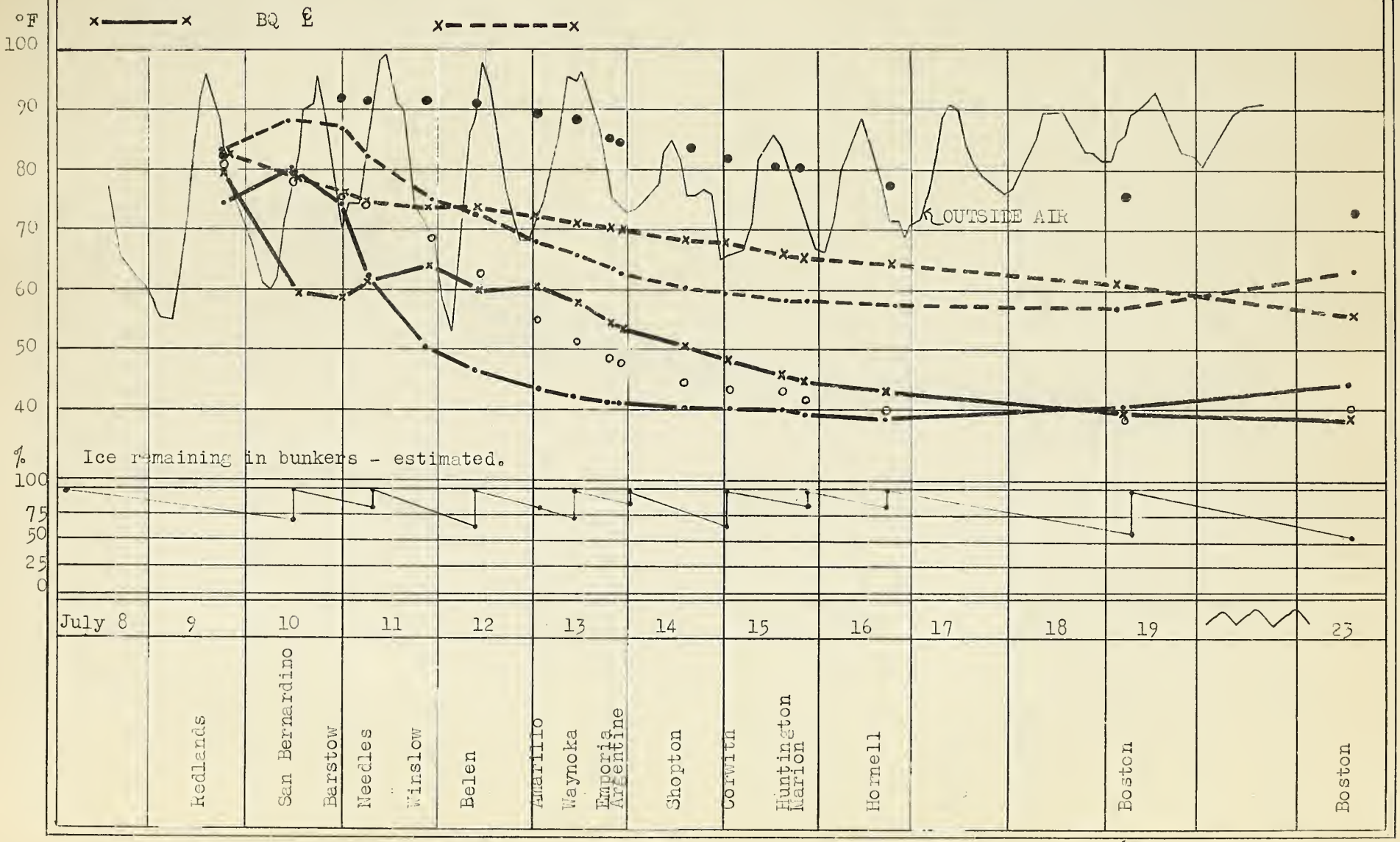


CHART 7

FRUIT TEMPERATURES

Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position BD ℄
Coolest Position BB ℄

CAR G ORANGES (July 1952)
HALF STAGE FANS ON
DRY CAR LOADED, INITIALLY ICED
SAN BERNARDINO, STD. REFRIGERATION
Load: 462 Standard Boxes and
189 Fiber Cartons, single deck
layer

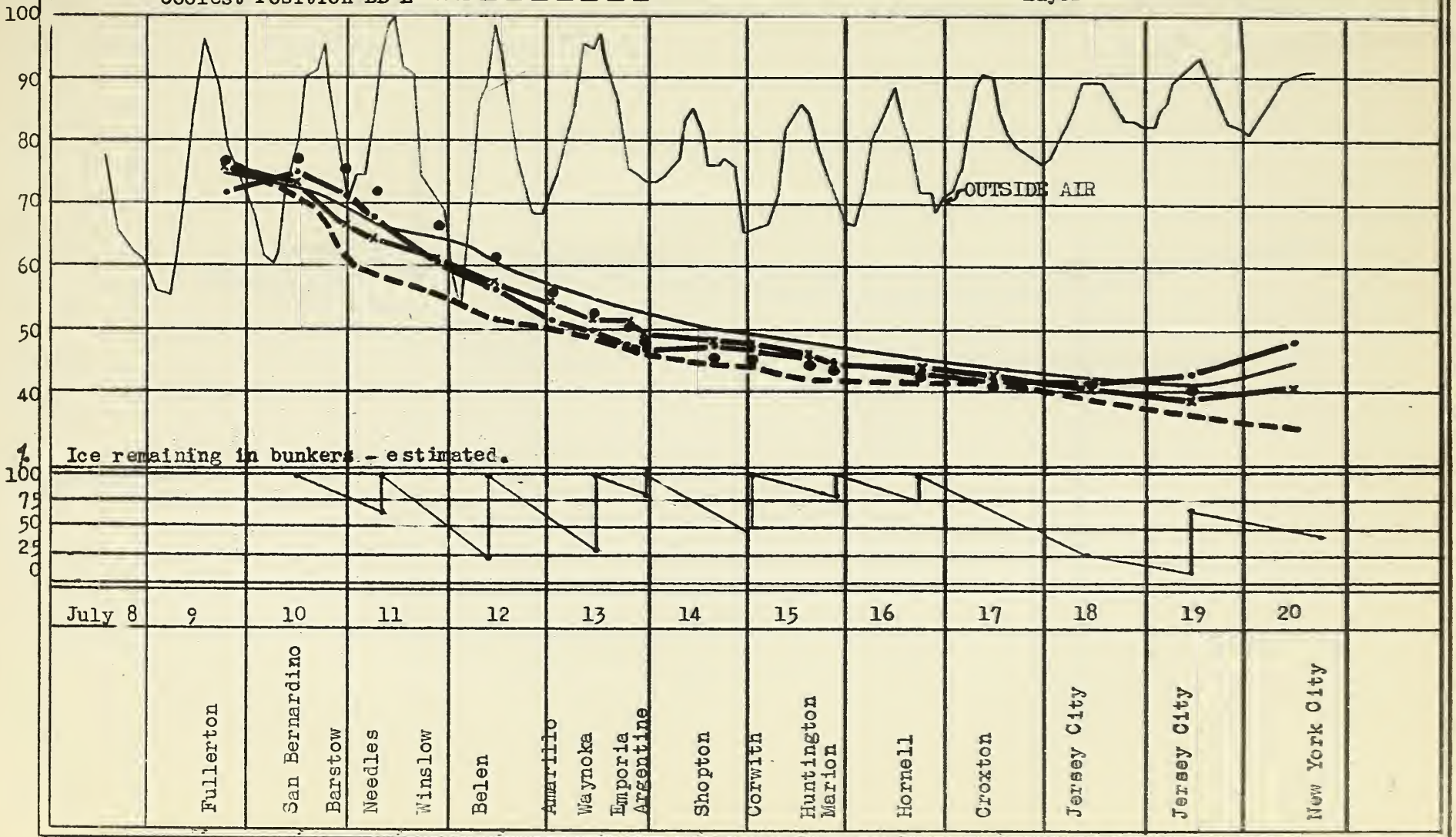


CHART 8

FRUIT TEMPERATURES

CAR H LEMONS (July 1952)
FULL BUNKER FANS OFF
PREICED, REPL., ONE REICING WAYNOKA
Load: 946 Fiber cartons loaded with 4 carton-unit chimney

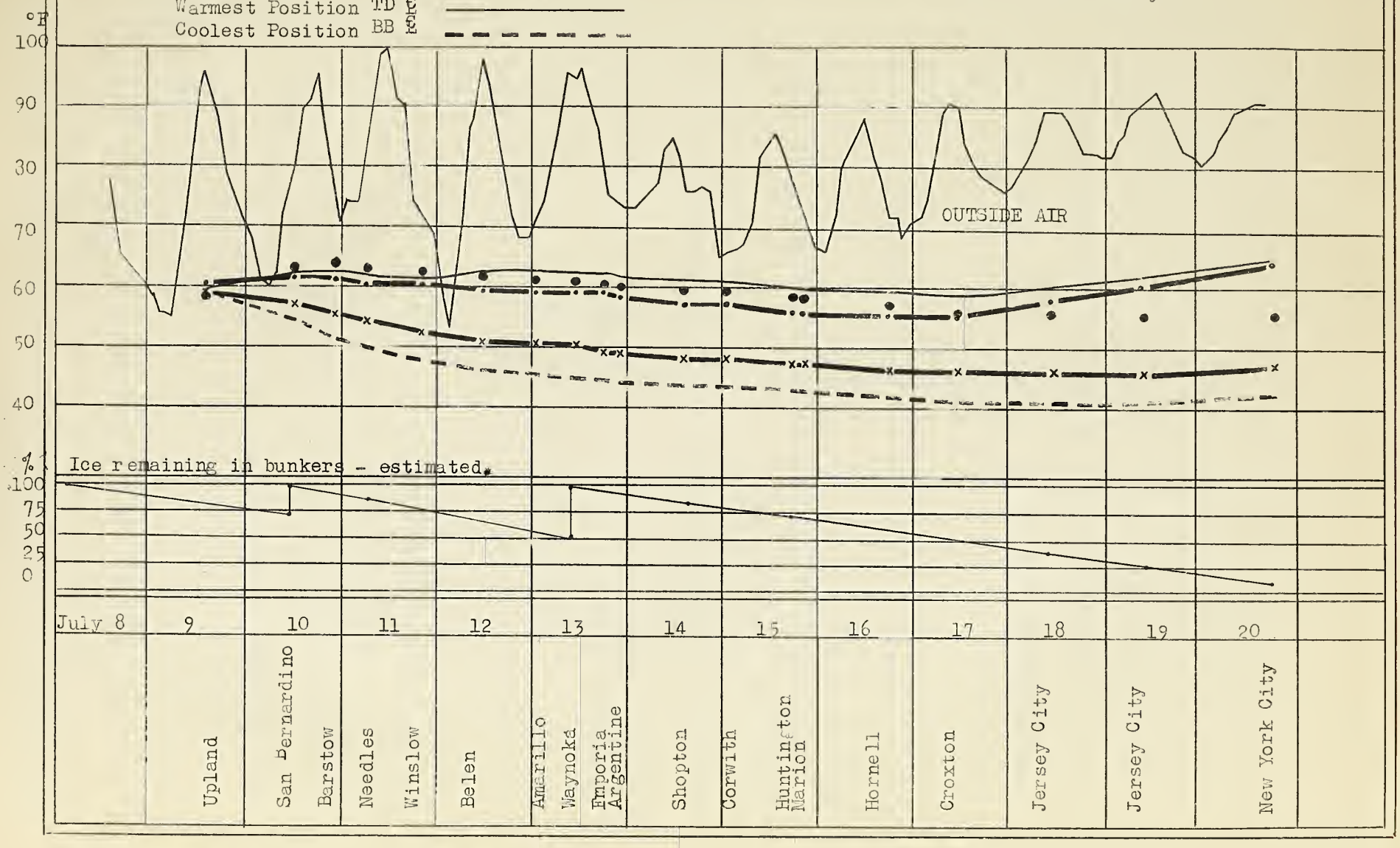


CHART 9

FRUIT TEMPERATURES

CAR I LEMONS (July 1952)
FULL BUNKER FANS ON
PREICED, REPL., ONE REICING WAYNOKA
Load: 946 Fiber cartons loaded with
4 carton-unit chimney

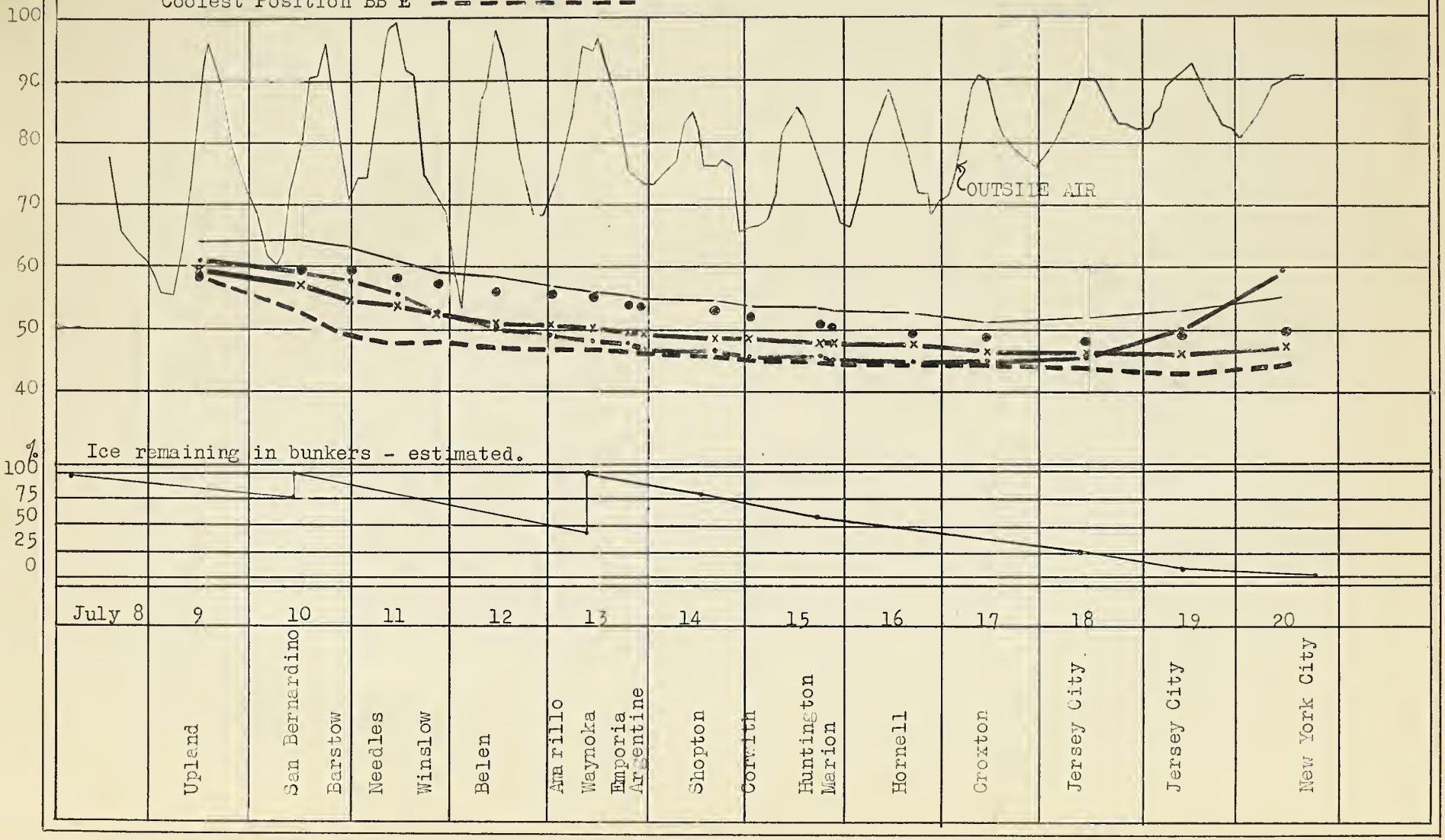


CHART 10

FRUIT TEMPERATURES

Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position MQ ℄
Coolest Position BB ℄

CAR J LEMONS (July 1952)
FULL BUNKER FANS ON
PRECICED, REFL., and 2 REICINGS -
BELEN AND CORWITH
Load: 955 Fiber cartons loaded with
4 carton-unit chimney

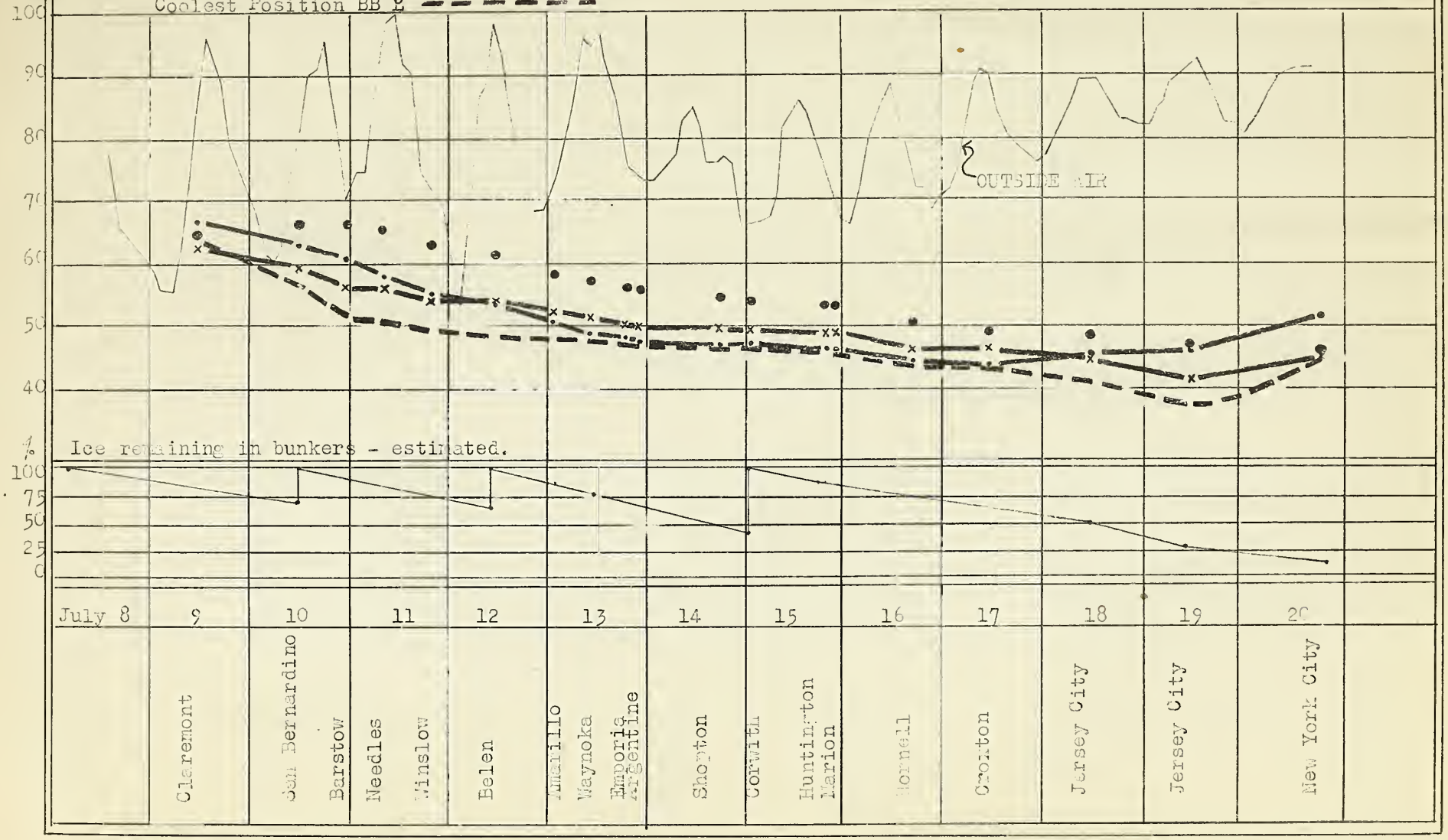


CHART 11

FRUIT TEMPERATURES

Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position BD £
Coolest Position MQ SS

CAR K LEMONS (July 1952)
FULL BUNKER FANS ON
PREICED, REPL., WITH ONE REICING AT WAYNOKA
Load: 464 Standard Boxes. Std. Load.

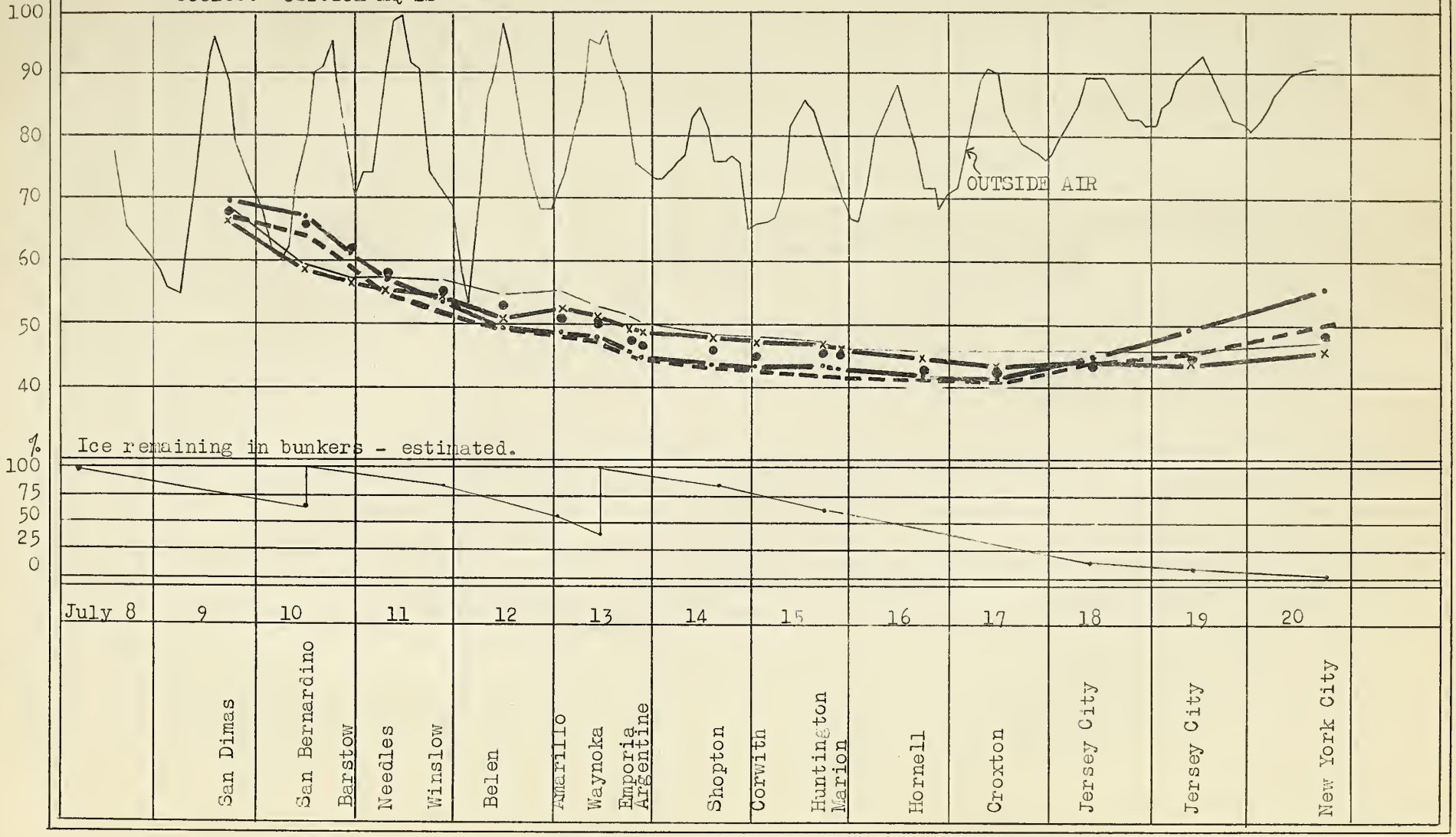


CHART 12

FRUIT TEMPERATURES

CAR L LEMONS (July 1952)
HALF-STAGE FANS ON
PREICED, REPL., STD. REFRIGERATION
Load: 464 Standard boxes - Std. Load

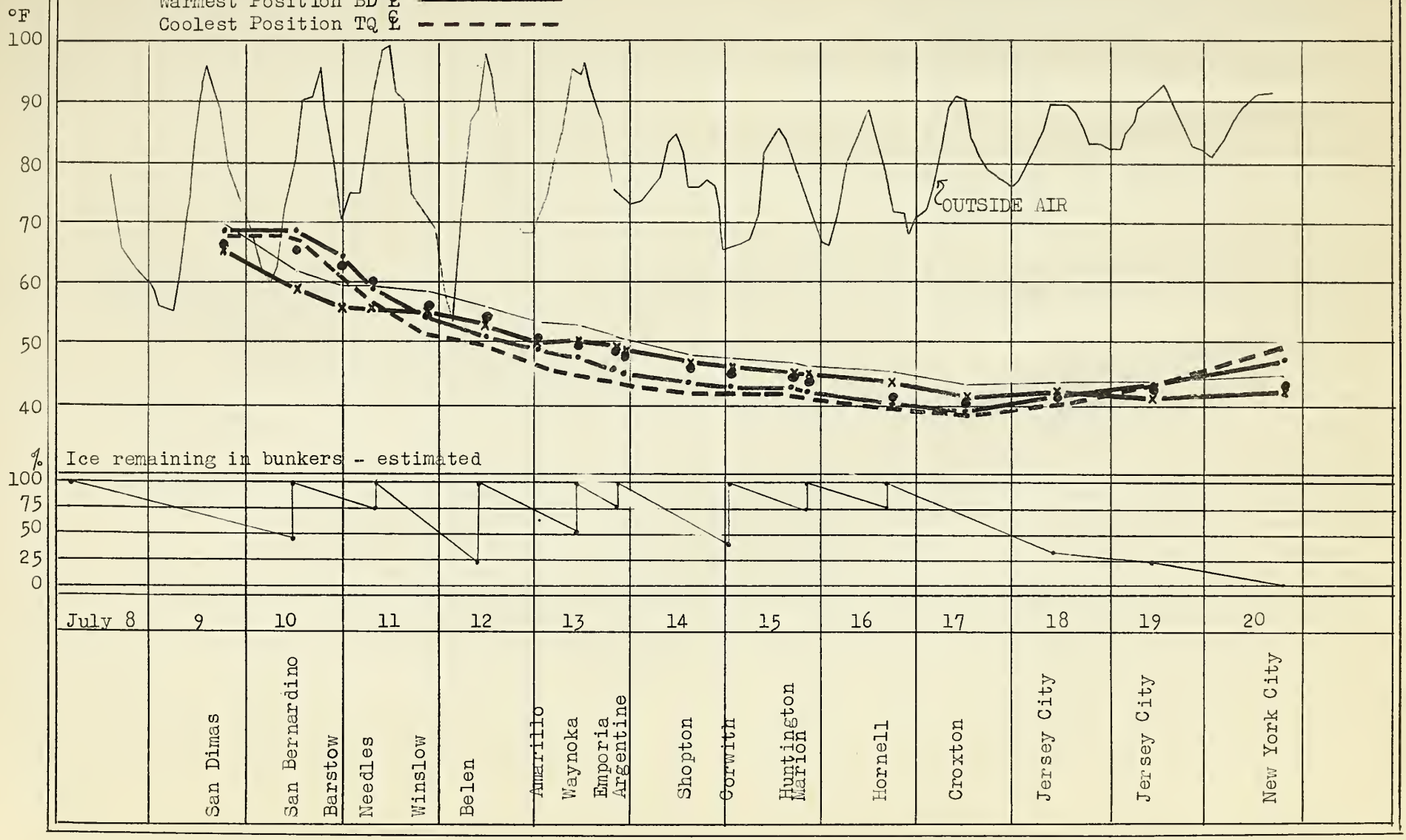
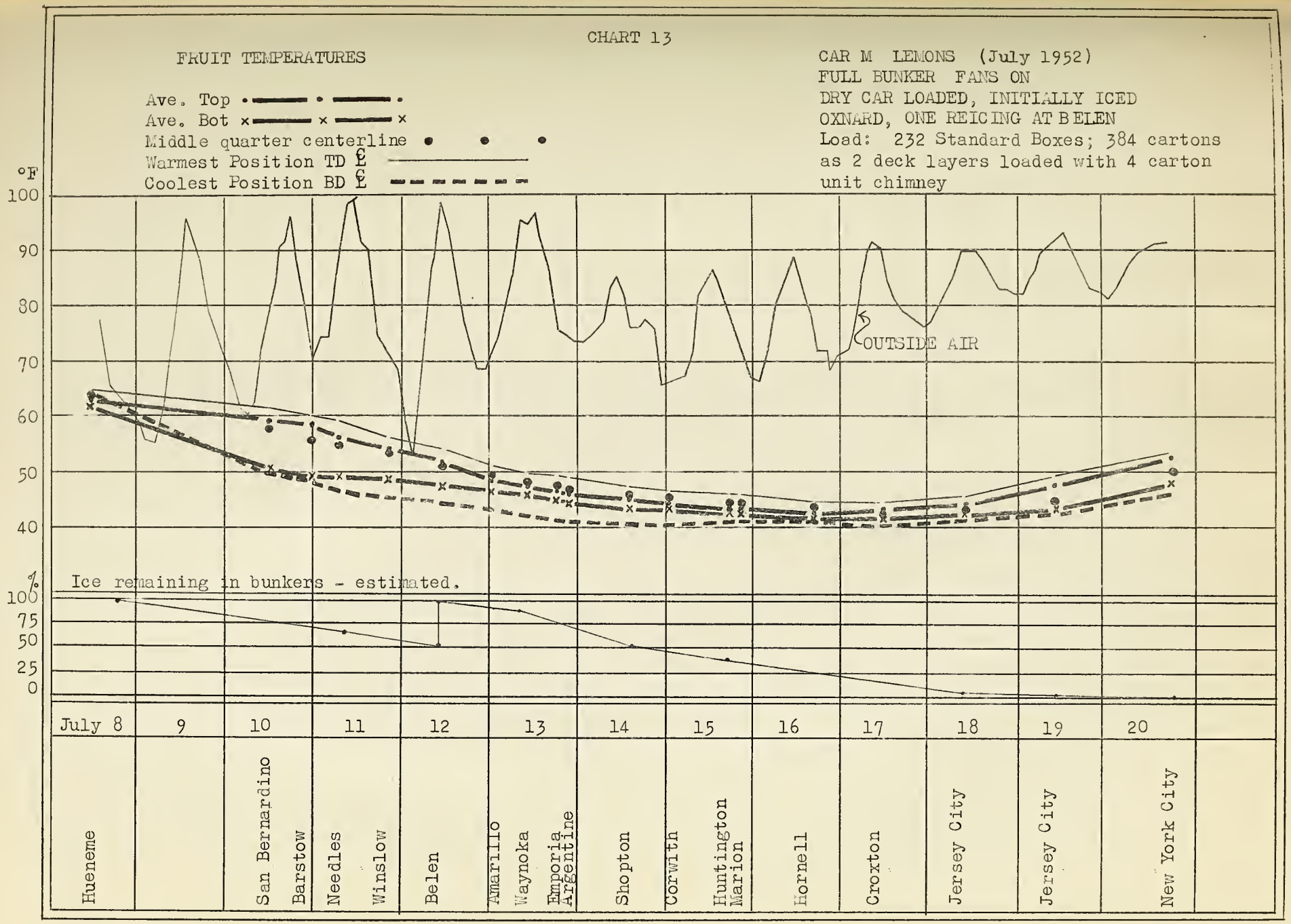


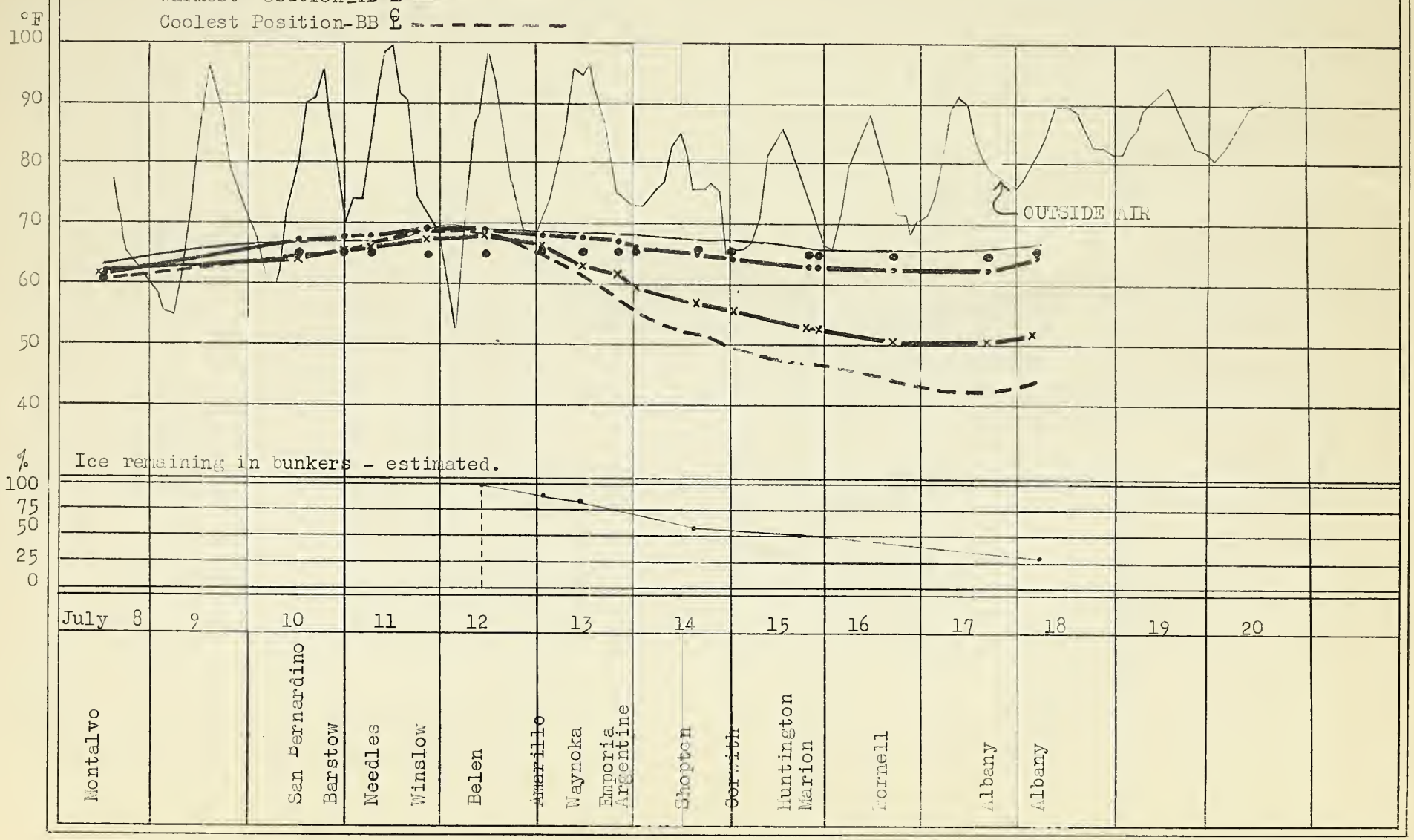
CHART 13


FRUIT TEMPERATURES
Ave. Top
Ave. Bot
Middle quarter centerline
Warmest Position TD ℄
Coolest Position BD ℄
CAR M LEMONS (July 1952)
FULL BUNKER FANS ON
DRY CAR LOADED, INITIALLY ICED
OXNARD, ONE REICING AT BELEN
Load: 232 Standard Boxes; 384 cartons
as 2 deck layers loaded with 4 carton
unit chimney
°F
100
90
80
70
60
50
40
OUTSIDE AIR
%
Ice remaining in bunkers - estimated.
100
75
50
25
0
July 8
9
10
11
12
13
14
15
16
17
18
19
20
Hueneme
San Bernardino
Barstow
Needles
Winslow
Belen
Amarillo
Waynoka
Emporia
Argentine
Shopton
Corwith
Huntington
Marion
Hornell
Croxton
Jersey City
Jersey City
New York City

FRUIT TEMPERATURES

CHART 14

CAR N LEMONS (July 1952)
Std. Vent. to Belen - then Initial icing - Full Bunker. Fans off.
Load: 426 Rectangular cartons and 560 Square cartons without chimneys.



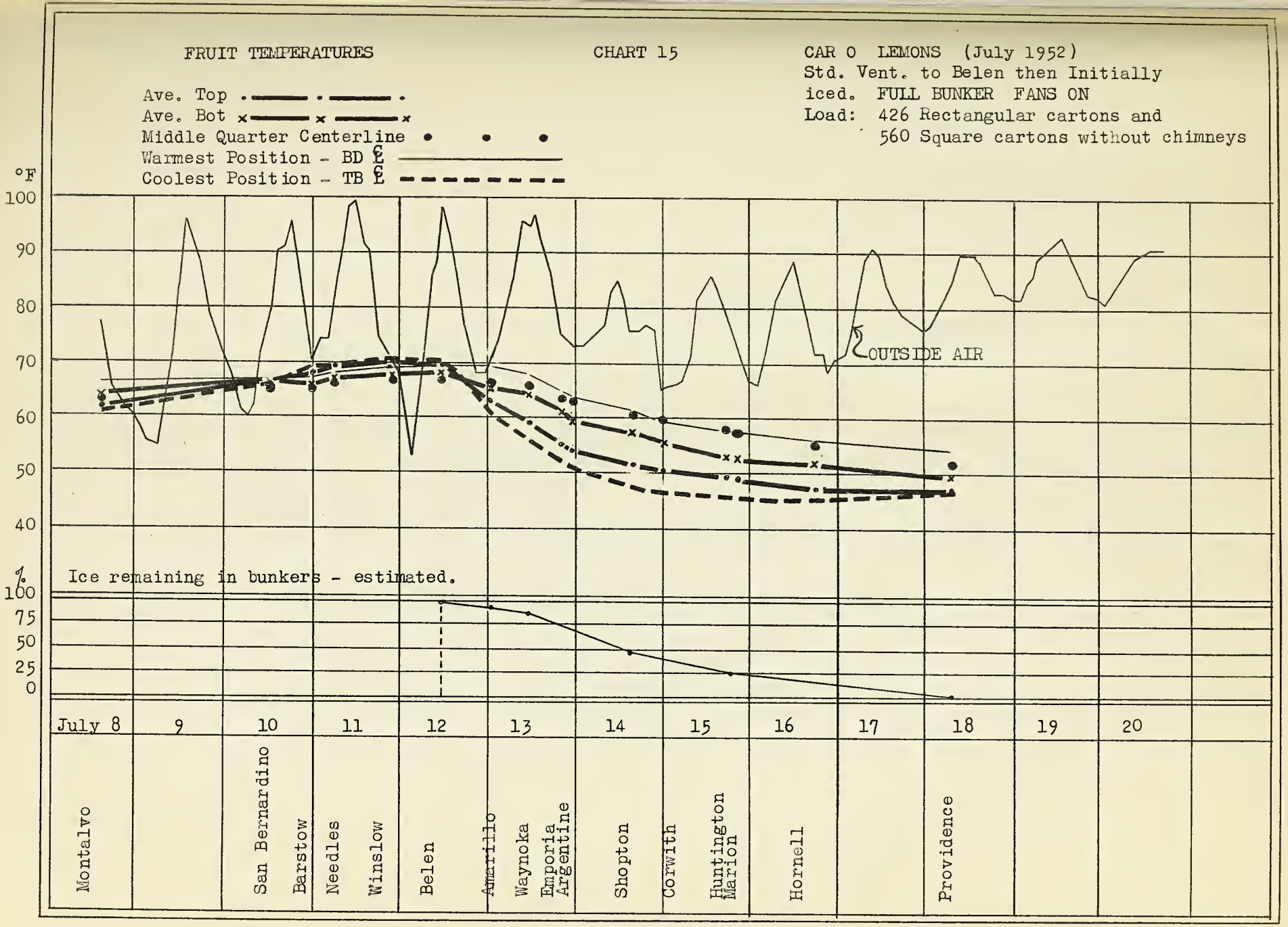
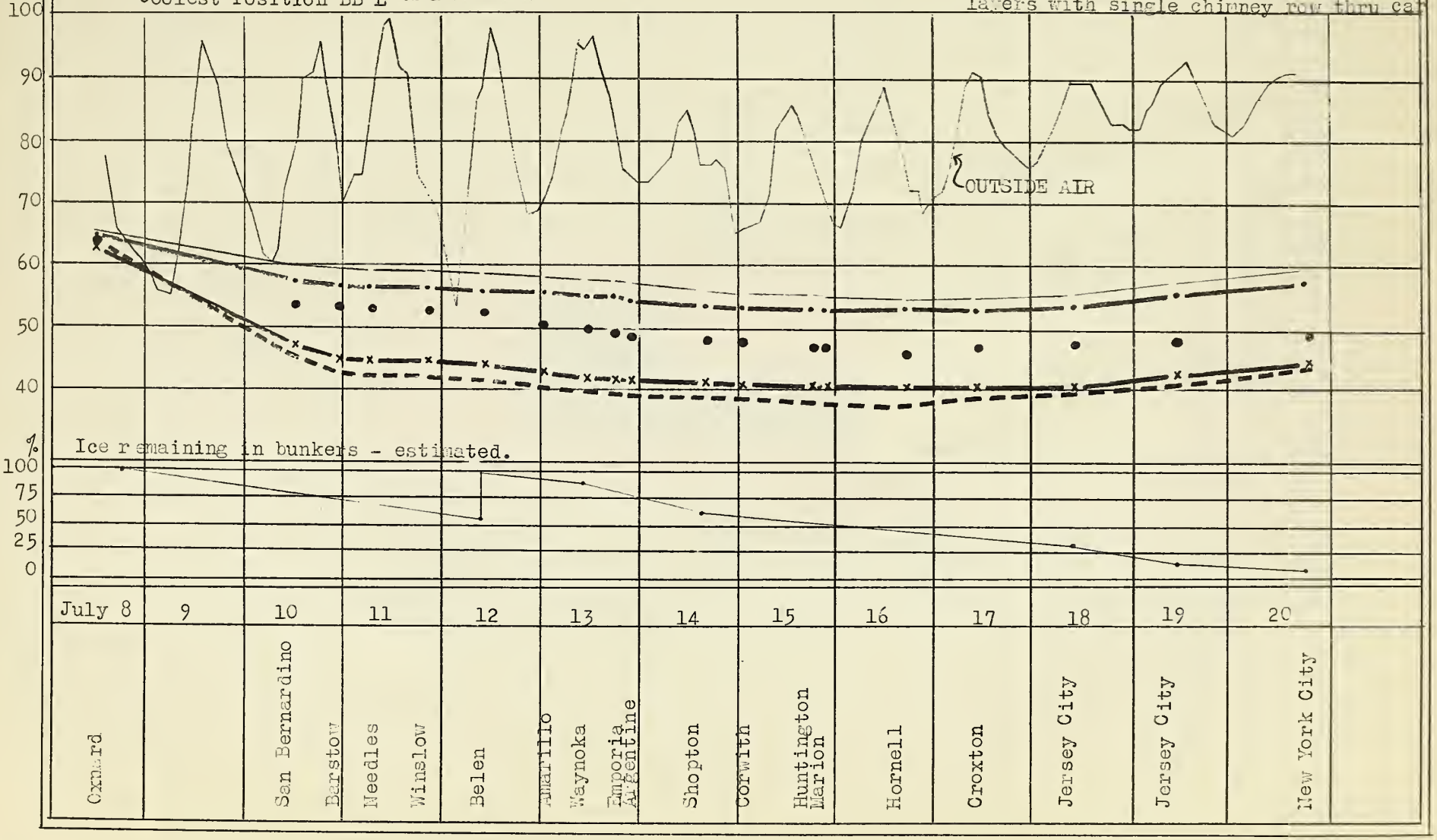

FRUIT TEMPERATURES
CHART 15
CAR O LEMONS (July 1952)
Std. Vent. to Belen then Initially iced. FULL BUNKER FANS ON
Load: 426 Rectangular cartons and 560 Square cartons without chimneys
Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position - BD ℄
Coolest Position - TB ℄
°F
100
90
80
70
60
50
40
OUTSIDE AIR
Ice remaining in bunkers - estimated.
%
100
75
50
25
0
July 8
9
10
11
12
13
14
15
16
17
18
19
20
Montalvo
San Bernardino
Barstow
Needles
Winslow
Belen
Amarillo
Waynoka
Emporia
Argentine
Shopton
Corwith
Huntington
Marion
Hornell
Providence

CHART 16

FRUIT TEMPERATURES

Ave. Top
Ave. Bot
Middle Quarter Centerline
Warmest Position TQ ℄
Coolest Position BB ℄

CAR P LEMONS (July 1952)
FULL BUNKER FANS OFF
DRY CAR LOADED. INITIALLY ICED AND
ONE REICING AT BELEN
Load: 232 Standard Boxes
392 Fiber Cartons loaded as 2 deck layers with single chimney row thru car